



Seattle Public Utilities 2006-2008 Water Rate Study

February, 2006

Table of Contents

I.	Executive Summary.....	1
II.	Financial Policies	2
A.	Executive’s Financial Policies	2
B.	Financial Performance Outlook.....	3
III.	Revenue Requirement	4
A.	Components of the Retail Revenue Requirement Increase.....	4
1.	Capital Improvement Program (CIP).....	4
2.	Operations and Maintenance.....	5
3.	Other Revenues and Expenses	6
4.	Revenue Stabilization Subfund	9
5.	Return to a “Normal” Year Demand Pattern	9
6.	Reduced Retail Demand	10
B.	Hydrant Services.....	10
1.	The Cost of Hydrant Service.....	10
2.	Hydrant Service Levels	11
3.	Hydrant Service Customers	11
IV.	Cost Allocation	13
A.	Schematic Diagram.....	14
B.	Cost Basis	14
C.	Component Costs of Water Service.....	15
D.	Customer Classes.....	16
E.	Customer Class Characteristics.....	16
F.	Customer Class Cost of Service.....	17
V.	Demand	19
VI.	Rate Design.....	21
A.	Objectives	21
B.	Direct Service Rate Design	22
1.	Residential Rate Design	22
2.	Low Income Utility Credit	23
3.	General Service Rate Design	24
4.	Master-Metered Residential Developments.....	26
5.	Private Fire Service.....	26
6.	Shoreline Franchise Fee	28
	Appendix A: 1982 Wholesale Contract Rate Study	A-1
	Appendix B: New Wholesale Contract Rate Study	B-1
	Appendix C: Informational Tables	C-1
	Appendix D: Cost Allocation Details	D-1

I. Executive Summary

The water system is an enterprise of the City of Seattle and is wholly supported by rate and fee revenues related to water service. In any given year, these rates and fees must be sufficient to pay the total costs of the water system. This total cost is known as the revenue requirement and is determined by the financial policies of the water system, as adopted by City Council.

Most water system revenues are from retail and wholesale water rates. Wholesale contracts determine the amount that wholesale customers may be charged for their service in any particular year. This means that retail water rates are the “balancing entry” that generates the difference between each year’s total revenue requirement and wholesale revenues. For this reason, the retail rate study is performed subsequent to wholesale rate studies. The 2006-2008 wholesale rate studies are attached as Appendix A and Appendix B. This rate study focuses on retail water rates.

The last rate increase was in 2004. Under this rate proposal, retail rates will increase by an average of 2.2% in 2006, 4.6% in 2007 and 7.4% in 2008:

Proposed Average Retail Rate Adjustments

	2006	2007	2008
Residential	0.7%	4.5%	7.2%
General Service	3.6%	4.7%	7.7%
Private Fire Service	0.0%	0.0%	0.0%
Average:	2.2%	4.6%	7.4%

The monthly bill of a typical residential customer will increase by \$1.00 in 2006, \$0.59 in 2007 and \$1.66 in 2008. General service (or “commercial”) customers will experience a bill increase in each year that depends on their consumption level. As part of each rate study, the allocation of costs among customer classes is reviewed in order to capture shifts in costs and customer characteristics that drive costs. This year, there was a slight shift of costs toward public fire service.

There are several main reasons for the net increase in retail rates from 2005 to 2008. Higher operational costs such as those for water system security upgrades (in 2007 and 2008) and the continuing large capital program are increasing the overall revenue requirement. Also, retail water demand is forecast to decline by over two percent per year. Most of the cost of supplying water is in the pipes and the pumps. So, the decrease in sales means less revenue but not less cost. In order to keep the water system finances balanced, rates must rise to offset the declining demand. The rate increases are partially mitigated by drawing down a \$2.4 million surplus balance of the Revenue Stabilization Subfund over the rate period.

There have been two significant changes since the 2003-2004 rate study. In 2005, the water system began charging local governments for the costs associated with the fire hydrants that serve them. Ordinance 121676 set hydrant rates for 2005 and 2006. This rate study incorporates these changes and proposes new hydrant rates for 2007 and 2008.

This rate study proposes increasing the base service charge for both residential and commercial customers proportionally more than the commodity rates. This is proposed to increase economic efficiency and revenue stability and results in relatively small commodity rate increase for residential customers, but larger increases for commercial customers. This rate study also proposes creating a customer class for Shoreline customers to improve revenue stability.

II. Financial Policies

Financial policies provide a guiding framework for the finances of the utility. They represent a balance between the competing goals of fiscal conservatism through higher rates today and minimizing rates today by spreading costs over time to future ratepayers. The direct effect of the policies is to determine the level at which a utility's rates shall be set, given its estimated costs and sales, and to define the general manner in which the utility's capital improvement program is to be financed.

The indirect effects of the policies are to:

- Shape the financial profile the utility presents to the financial community;
- Establish the utility's exposure to financial risk; and,
- Allocate the utility's costs between current and future ratepayers.

In any future year, the desired revenue requirement is the lowest amount of money necessary to simultaneously satisfy all financial policies in that year. At this desired revenue, some financial policies may be exceeded, but none will be missed – the financial target that is exactly met is known as the binding constraint.

In 2005 City Council passed Resolution 30742, which adopted new water system financial policies that reflect changes and additions to the financial policies adopted in 1992. The new financial policies are more appropriate for the current financial environment and capital financing requirements. This rate proposal is based on those policies.

A. *Water Fund Financial Policies*

The financial policies on which this rate study are based are:

1. **Maintenance of Capital Assets.** For the benefit of both current and future ratepayers, the municipal water system will seek to maintain its assets in sound working condition. Future revenue requirement analyses will include provision for maintenance and rehabilitation of facilities at a level intended to minimize total cost while continuing to provide reliable, high quality service.
2. **Debt Service Coverage.** Debt service coverage on first-lien debt should be at least 1.7 times debt service cost in each year on a planning basis.
3. **Net Income.** Net income should generally be positive.
4. **Cash Funding of the Capital Improvement Program.** Current revenues should be used to finance no less than 15% of the municipal water system's adopted Capital Improvement Program ("CIP") in any year, and not less than 20% of the CIP over the period of each rate proposal. Cash in excess of working capital requirements may be used to help fund the CIP.
5. **Eligibility for debt financing.** Unless otherwise authorized by Council, the following criteria must be met before project expenditures are eligible for debt financing:
 - i) Project is included in the CIP,
 - ii) Total project cost exceeds \$50,000,
 - iii) Project has expected useful life or more than two (2) years (more than 5 years for information technology projects),

- iv) Resulting asset will be owned or controlled by Seattle Public Utilities (SPU), is part of the regional utility infrastructure, or represents a long-term investment for water conservation; and
 - v) Consistent with generally accepted accounting practices, project costs include those indirect costs, such as administrative overhead and program management, than can be reasonably attributed to the individual CIP project.
6. **Revenue Stabilization Subfund.** As stated in Ordinance 121761, a target balance of \$9 million will be maintained in the Revenue Stabilization Subfund, except when withdrawals below this level are needed to offset shortfalls in metered water sales revenues, or to meet financial policy requirements. Withdrawals of funds in excess of the minimum balance will be used to meet operating expenses, to pay Capital Improvement Program expenditures, or to meet financial policy requirements. Withdrawals from the Subfund must be authorized by ordinance, except that Bonneville Power Administration Account funds may be withdrawn based on BPA spending.
- SPU may also make discretionary deposits to the Revenue Stabilization Subfund, provided that these discretionary deposits are in excess of the amounts required to meet the financial policy requirements. Should the balance in Subfund fall below the target balance, within one year SPU shall submit a water rate proposal that rebuilds the balance in the Subfund.
7. **Cash Target.** The target for the year-end operating fund cash balance is one-twelfth of the current year's operating expenditures.
8. **Variable Rate Debt.** Variable rate debt should not exceed 15% of total outstanding debt. Annual principal payments shall be made on variable rate debt in a manner consistent with fixed rate debt.

B. Financial Performance Outlook

The 2006-2008 proposed rates meet all water system financial policy targets, as shown below:

Water Fund Projected Financial Performance

	Target	Projected 2006	Projected 2007	Projected 2008	Projected 2009	Projected 2010	Projected 2011
Net Income (\$1,000's)	positive	6,122	1,389	158	38	298	1,491
Debt Service Coverage	1.7x	1.78	1.78	1.75	1.75	1.70	1.70
Cash Financing of the Capital Program	20%*	20.9%	15.0%	26.1%	23.9%	23.7%	34.6%
from Contributions in Aid of Construction		10.4%	9.2%	13.3%	11.8%	13.3%	17.1%
from Rate Revenues		8.5%	5.5%	12.5%	11.8%	10.4%	17.5%
from Bonneville Power Administration Account		2.0%	0.4%	0.3%	0.3%	0.0%	0.0%
Year-End Operating Cash (\$1,000's)	varies**	5,012	5,446	5,555	5,694	5,836	5,982

* Current revenues should be used to finance no less than 15% of the CIP in any year, and not less than 20% of the CIP over the period of each rate proposal.

** The target for the year-end operating fund cash balance is one-twelfth of the current year's operating expenditures.

III. Revenue Requirement

The revenue requirement is the amount of revenue necessary to pay the total annual cost of operating the water system. The water system earns revenue from a variety of sources, including water sales to wholesale and retail customers and contributions in aid of construction. The revenue required from all sources is shown below. Retail customers must pay the portion of the revenue requirement not recovered from another revenue source or customer class.

2006-2008 Retail Revenue Requirement

	2006	2007	2008
Total Revenue Requirement	149,591,094	155,406,597	162,451,316
less non-Retail Revenue Sources	(50,965,261)	(54,237,151)	(55,895,382)
Retail Rate Revenue Requirement:	98,625,834	101,169,446	106,555,935

Increases in the retail revenue requirement are caused by higher operational costs such as those for water system security upgrades (in 2007 and 2008) and by the continuing large capital program. Increased costs are somewhat offset by increases in revenue from a variety of sources, including wholesale customers. Also, while it does not impact the revenue requirement, rate increases of over two percent per year are needed to offset declining water demand (see Section V: Demand).

A. Components of the Retail Revenue Requirement Increase

The following table summarizes the year-to-year changes in the retail revenue requirement. In each year, it shows the impact on the retail revenue requirement of changes in expenses and revenues compared to the previous year.

Retail Summary Table

(Year-to-Year Changes in the Retail Revenue and Rate Requirements)

	2006		2007		2008	
	\$	%	\$	%	\$	%
Capital Program	2,508,443	2.6%	(2,270,676)	-2.3%	7,008,222	6.9%
Operations and Maintenance	173,180	0.2%	4,999,474	5.1%	1,445,932	1.4%
Other Revenues and Expenses	1,791,537	1.9%	(135,186)	-0.1%	(2,567,665)	-2.5%
Revenue Stabilization Subfund Deposit	(1,225,000)	-1.3%	(50,000)	-0.1%	(500,000)	-0.5%
Return to "Normal" Demand Pattern	(3,250,000)	-3.4%	-	0.0%	-	0.0%
Subtotal of Changes to Cost and Revenue:	(1,839)	0.0%	2,543,612	2.6%	5,386,489	5.3%
Reduced Retail Demand	2,141,750	2.2%	1,945,566	2.0%	2,129,541	2.1%
Total Retail Rate Increase:	2,139,911	2.2%	4,489,178	4.6%	7,516,030	7.4%

Each of these contributions to the retail revenue requirement and proposed rate increases is described in further detail in the remainder of this section.

1. Capital Improvement Program (CIP)

The CIP budget proposal totals \$77 million in 2006 and \$108 million in 2007, and \$70 million in 2008. For the purposes of rate-setting, SPU has assumed an 80% completion rate of the CIP based on the past several years' spending. On average approximately 80% of the completed CIP will be funded with revenue bonds over the three years. The remainder of the completed CIP will be funded with current

revenues, contributions in aid of construction and withdrawals from the Bonneville Power Administration (BPA) Account. A significant portion of the CIP in 2007 and 2008 is for the reservoir covering program. In addition, there will be some CIP spending for utility relocation associated with the Alaskan Way Viaduct replacement project and for the settlement with the Muckleshoot tribe. In total, financing the CIP increases retail rates by:

Revenue and Rate Requirement Changes Caused by the Capital Program

	2006		2007		2008	
	\$	%	\$	%	\$	%
Debt Service	(153,662)	-0.2%	(487,962)	-0.5%	4,341,112	4.3%
Cash Financing of the CIP	1,085,912	1.1%	(2,943,234)	-3.0%	2,448,276	2.4%
Contributions in Aid of Construction	611,193	0.6%	(30,480)	0.0%	70,834	0.1%
Use of BPA Account for Mitigation in the CIP	965,000	1.0%	1,191,000	1.2%	148,000	0.1%
	2,508,443	2.6%	(2,270,676)	-2.3%	7,008,222	6.9%

Debt Service – Under this proposal, the rates model assumes new bond issues are scheduled for August 2006 (\$40 million) and July 2007 (\$62 million) and July 2008 (\$51 million). In 2007, an increase in debt service from new issues balanced with a decrease in existing debt service. In 2008, there is a significant increase in new debt service.

Cash Financing of the CIP – Water system financial policies call for 20% of the CIP to be financed with cash (as opposed to revenue bonds) over the period for which rates are proposed. The sources of cash that assist in meeting this 20% target are current revenues and various types of contributions in aid of construction (described below). In all three years, the level of cash financing also satisfies the Water Fund's 1.7x debt service coverage target. In 2006 and 2007 the dollar amount of cash financing the CIP drops even though overall CIP spending is expected to rise. This is because a lower percentage contribution will be made in order to maintain a reasonable rate increase. In 2008, however, the cash contribution jumps up again because a higher contribution will be required to meet the 3-year 20% target.

Contributions in Aid of Construction – Customers often pay for water facilities when they connect to the water system or cause the relocation of water facilities. For example, a developer pays for installation of a water meter and service line when building a new house. In 2005 Sound Transit paid SPU over \$1 million to relocate water infrastructure. These payments, which are considered contributions in aid of construction, are expected to decrease in 2006 and then level off in 2007 and 2008. The effect of a decrease in contributions in aid of construction is an increase in the revenue requirement.

Use of BPA Account for CIP Mitigation – In 2003, the City sold an easement to the Bonneville Power Administration (BPA) so that a power transmission line could be built by BPA through the Cedar River Watershed. The purchase of the easement allowed BPA to avoid using its powers of eminent domain, and allowed the City to provide for mitigation of the powerline project through use of easement proceeds. When approving the sale of the easement, the City set the easement revenues aside in the BPA Account to pay for mitigation activities. In 2005 these mitigation projects included in the CIP were budgeted at \$2.5 million. They are expected to drop to \$1.5 million in 2006, \$336 thousand in 2007 and \$188 thousand in 2008. The use of BPA Account moneys is considered similar to a contribution in aid of construction and helps to satisfy the target for cash financing of the CIP.

2. Operations and Maintenance

Under this proposal, the operations and maintenance budget of the water system (not including taxes, debt service or small capitalizable items) will remain at the 2005 level of approximately \$60 million in 2006, then increase to \$65.4 million in 2007 and \$66.7 million in 2008. Withdrawals from the BPA Account

pay for certain O&M mitigation activities included in the O&M budget in 2006-2008, and so reduce the O&M portion of the retail revenue requirement. On net, changes in operating costs increase the retail revenue requirement by \$173 thousand, \$5 million and \$1.5 million in 2006-2008, respectively.

Revenue and Rate Requirement Changes Caused by O&M Spending

	2006		2007		2008	
	\$	%	\$	%	\$	%
Security Upgrades	-	0.0%	1,418,344	1.4%	-	0.0%
Water Quality and Supply	-	0.0%	903,538	0.9%	-	0.0%
Bonneville-related Mitigation	(289,239)	-0.3%	214,832	0.2%	(141,604)	-0.1%
Miscellaneous O&M additions	-	0.0%	1,365,813	1.4%	-	0.0%
Inflation	173,180	0.2%	1,311,780	1.3%	1,445,932	1.4%
Subtotal of Increase to O&M Costs:	(116,059)	-0.1%	5,214,306	5.3%	1,304,328	1.3%
Use of BPA Account for O&M Mitigation	289,239	0.3%	(214,832)	-0.2%	141,604	0.1%
Total Retail Rate Increase from O&M Costs:	173,180	0.2%	4,999,474	5.1%	1,445,932	1.4%

Security System Maintenance - SPU is installing a water asset security system that will protect the regional drinking water supply. An additional \$1.35 million annually is need for maintenance of the system. This amount also includes security-related information technology services and training.

Water Quality and Supply - The O&M budget includes an additional \$860 thousand annually starting in 2007 for activities related to regulatory compliance, water system security, and repair and replacement in the Tolt and Cedar plants.

Bonneville-related Mitigation - The O&M budget includes \$606,914 in 2006, \$821,746 in 2007, and \$680,146 in 2008 for mitigation activities associated with the construction by the Bonneville Power Administration of a power transmission line through the Cedar River Watershed. This spending will be paid for from the BPA Account. The use of the BPA Account lowers the retail revenues required to pay for the O&M program.

Miscellaneous O&M additions - Starting in 2007, an additional \$1.3 million will needed for various activities, including Corporate Asset Management, the Habitat Conservation Program, training, Watershed Management, and new costs associated with closed CIP projects.

Inflation – Inflation accounts for 0.2%, 1.3% and 1.4% of the retail rate increases 2006-2008, respectively.

3. Other Revenues and Expenses

Changes in other revenues and expenses offset a substantial portion of system cost increases. A significant portion of the total water system revenue requirement is paid by wholesale customers, and thereby reduces the system costs that need to be paid by retail customers. This rate study assumes that general governments will be charged for fire protection services at no net cost to most ratepayers. Finally, the water system pays certain revenue taxes, and recognizes certain accruals as part of cash flow management.

Rate and Revenue Requirement Changes Caused by Other Revenues and Expenses

	2006		2007		2008	
	\$	%	\$	%	\$	%
Wholesale Revenues	(134,224)	-0.1%	(2,001,000)	-2.0%	(1,422,000)	-1.4%
Hydrant Service Revenues	(60,000)	-0.1%	(1,429,998)	-1.4%	(296,559)	-0.3%
Taxes	2,503,833	2.6%	796,354	0.8%	1,185,953	1.2%
Changes in Cash Balances	(518,072)	-0.5%	2,499,458	2.5%	(2,035,059)	-2.0%
	1,791,537	1.9%	(135,186)	-0.1%	(2,567,665)	-2.5%

Wholesale Revenues – Rates for wholesale customers are set in accordance with wholesale contracts. These contracts define cost of service methodologies that determine how much the water system can charge for wholesale service. The wholesale rate studies attached apply these methodologies based on expenditure projections. Wholesale rates may be affected by actions that raise or lower the water system budget. Outside of budget changes, there is very little flexibility to alter wholesale rates and revenues.

Revenues from wholesale customers are expected to steadily increase from \$38.6 million in 2005 to \$43.2 million in 2008.

Projected Wholesale Revenues (in \$1,000's)

	2005	2006	2007	2008	Change 05-06	Change 06-07	Change 07-08
Old Contract Revenue	2,903,606	3,671,922	3,835,950	4,080,968	768,315	164,029	245,017
New Contract Revenues	16,585,753	18,515,762	18,419,904	18,423,281	1,930,009	(95,858)	3,377
New Contract Subregional Surcharges	127,182	246,589	426,109	469,829	119,408	179,519	43,720
Cascade Block Revenues	15,489,079	14,147,944	14,689,793	15,457,311	(1,341,135)	541,849	767,518
Northshore Block Revenues	4,568,754	4,350,822	4,334,633	4,625,519	(217,932)	(16,188)	290,886
Transition Credits	(1,113,249)	(1,175,631)			(62,382)	1,175,631	-
TOTAL	38,561,124	39,757,407	41,706,389	43,056,908	1,196,283	1,948,981	1,350,519

Each year, the actual cost of serving wholesale customers is “trued-up” with actual revenues received. Any net surplus or deficit is carried forward and reduces or increases wholesale rates in the next rate period. Transition Credits relate to customers who switch contracts and represent a one-time settle-up between Seattle and these wholesale customers for “true-up” balances on the contract these customers are leaving.

Old and New Contract revenues are gradually increasing over the period of the rate study. The fluctuations in block revenues are due to updates of expenditure projections since the last rate study and the true-up of expected overpayments in prior years. The majority of the transition credits shown in 2005 will be paid to Northshore Utility District and the 2006 transition credits will be paid to Woodinville Water District. These are the last two wholesale customers to switch contract types.

The proposed wholesale rates appear in the following tables:

1982 Contract Wholesale Rates

	2005	2006 1/1 - 5/15	2006 5/16 - 12/31	2007	2008
Old Water (per ccf)					
Off Peak	\$ 0.96	\$ 0.96	\$ 0.96	\$ 1.02	\$ 1.08
Peak	\$ 1.48	\$ 1.48	\$ 1.48	\$ 1.57	\$ 1.67
Percent Increase			0%	6%	6%
Growth Charge (per ccf)	\$ 0.40	\$ 0.40	\$ 0.94	\$ 0.81	\$ 0.91
Percent Increase			135%	(14%)	12%
Demand Charge	\$ 22.00	\$ 22.00	\$ 22.00	\$ 22.00	\$ 22.00
Base Service Charge (per month)					
1"	\$ 54.00	\$ 54.00	\$ 54.00	\$ 54.00	\$ 54.00
1-1/2"	\$ 60.00	\$ 60.00	\$ 60.00	\$ 60.00	\$ 60.00
2"	\$ 66.00	\$ 66.00	\$ 66.00	\$ 66.00	\$ 66.00
3"	\$ 78.00	\$ 78.00	\$ 78.00	\$ 78.00	\$ 78.00
4"	\$ 108.00	\$ 108.00	\$ 108.00	\$ 108.00	\$ 108.00
6"	\$ 192.00	\$ 192.00	\$ 192.00	\$ 192.00	\$ 192.00
8"	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00
10"	\$ 450.00	\$ 450.00	\$ 450.00	\$ 450.00	\$ 450.00
12"	\$ 528.00	\$ 528.00	\$ 528.00	\$ 528.00	\$ 528.00
16"	\$ 696.00	\$ 696.00	\$ 696.00	\$ 696.00	\$ 696.00
20"	\$ 948.00	\$ 948.00	\$ 948.00	\$ 948.00	\$ 948.00
24"	\$ 1,236.00	\$ 1,236.00	\$ 1,236.00	\$ 1,236.00	\$ 1,236.00

Full and Partial Requirements Contract Wholesale Rates

Rates per CCF	2005		2006			2007		2008	
	Off-Peak	Peak	Off-Peak 1/1-5/15	Peak	Off-Peak 9/16-12/31	Off-Peak	Peak	Off-Peak	Peak
System Baseline Rates	\$1.08	\$1.61	\$1.14	\$1.69	\$1.14	\$1.15	\$1.71	\$1.16	\$1.72
Change from Prior Year:			5.7 %	5.3 %	5.7 %	0.9 %	0.9 %	0.5 %	0.5 %
Transition Discount:	-\$0.07	-\$0.08	-\$0.07	-\$0.12	-\$0.12	-\$0.12	-\$0.12	-\$0.12	-\$0.12
Adjusted Wholesale Rate:	\$1.01	\$1.53	\$1.07	\$1.57	\$1.02	\$1.03	\$1.59	\$1.04	\$1.60
Change from Prior Year:			5.9 %	2.6 %	1.0 %	1.0 %	1.3 %	1.0 %	0.6 %
Interim Growth Charge:	\$0.60	\$0.60	\$0.60	\$0.60	\$0.60	\$0.60	\$0.60	\$0.60	\$0.60
Sub-regional Surcharge Rates									
Southwest Sub-region:	\$0.01	\$0.01	\$0.02	\$0.04	\$0.04	\$0.05	\$0.05	\$0.06	\$0.06
East Sub-region, Segment 3:	\$0.04	\$0.04	\$0.04	\$0.08	\$0.08	\$0.09	\$0.09	\$0.10	\$0.10
East Sub-region, Segment 4:	\$0.05	\$0.05	\$0.05	\$0.09	\$0.09	\$0.11	\$0.11	\$0.12	\$0.12
ERU Fee (\$/ERU):	\$713	\$713	\$713	\$713	\$713	\$713	\$713	\$713	\$713

Note: Rate Components may not sum to totals due to rounding. The Total Wholesale Rate is rounded to whole cents.

Hydrant Service Revenues – Fire hydrants provide water used by public fire departments to fight fires. The total cost to the water system of providing fire service is about \$5 million per year and has historically been embedded in retail customer rates. In order to more closely associate the cost of providing water for fire fighting with the governments responsible for providing fire protection, in 2005

SPU began charging them an annual fee for fire hydrants. Charging local governments for the fire hydrants that serve them will shift this revenue requirement from Seattle's retail customers to local governments. Most of the hydrants operated by the water system are within the City of Seattle, so most of this revenue will be recovered from the City. In 2005 the City increased the water system utility tax to pay for these costs. Together, the new revenues (from the City) and the increased taxes (paid by water retail customers) would almost equal one another, so there will be no net difference for most retail customers (see also Taxes, below, and Section IIIB – Hydrant Services). Hydrant rates for 2005 and 2006 were set by ordinance but in 2007 new hydrant rates will take effect; the increased revenues from governments will result in a lower retail revenue requirement.

Taxes – The water system pays a revenue tax (the water utility business and occupation tax) to the City. Proposed retail revenues for 2006-2008 are higher than projected 2005 revenues, so revenue taxes paid at 2005 tax rates will be higher than 2005 tax payments. In addition, starting in 2006 municipal revenue deductions are no longer allowed for the purposes of calculating the city water utility tax. Tap fees will also be subject to the city utility tax starting in 2006. Furthermore, the water utility tax increased from 14.04% to 15.54% effective May 15, 2005. The effect of all these changes is to increase taxes by \$2.5 million in 2006, \$800 thousand in 2007, and \$1.2 million in 2008.

Revenue Lags and Leads – In each year, the financial operations of the water system require cash flow that is somewhat different from recorded water sales. A good example of this is the lag in revenue between when rates are increased and when cash actually arrives. Bills are sent after consumption has occurred, and customers may take several weeks to pay their bills. This means that, after a rate increase, actual cash received by the water system in a year will be lower than the revenues billed for that year. The revenue requirement is adjusted to account for these differences between recorded sales and cash flow.

4. Revenue Stabilization Subfund

In 2002, the City Council passed Ordinance 120875 requiring an annual deposit of \$2.5 million from water revenues to a revenue stabilization subfund, and identifying a target balance of \$9.0 million for this fund. Hot and dry weather in the summers of 2003 and 2004 have allowed larger-than-planned deposits into the revenue stabilization subfund so that by the end of 2004, the subfund balance was \$10.5 million. An additional deposit to the subfund of \$625 thousand was made in the first quarter of 2005, bringing the balance to \$11.4 million by the end of 2005.

As indicated earlier, the minimum balance required for the subfund is \$9 million, and excess funds can be used to offset rate increases. As such, this proposal assumes that the excess \$2.4 million in the subfund will be withdrawn over the rate period, specifically \$600 thousand in 2006, \$650 thousand in 2007, and \$1.15 million in 2008. Withdrawals from the subfund reduce the retail revenue requirement.

5. Return to a "Normal" Year Demand Pattern

The demand forecast used in water rate studies assumes a year that is not particularly hot, cold, wet or dry. Outdoor water use drives significant demand during the summer when water rates are highest. This outdoor use depends heavily on the weather, and different conditions can cause revenues to vary from the forecast. The early part of the summer of 2005 was cooler and wetter than normal, causing retail revenues to be about \$3.3 million lower than what revenue would have been in a normal year. In addition, fears of a drought in the earlier part of 2005 may have caused an additional drop in

consumption. Because this revenue shortfall would not occur during a “normal” year, they are shown in the Retail Summary Table as a decrease to the 2005 revenue requirement.

6. Reduced Retail Demand

Retail demand is expected to decline by about 2% annually in 2006-2008. As such, rate increases are required to offset this reduction in demand. Almost all of the costs of the water system are associated with maintaining, operating and paying debt service on physical infrastructure such as pipes and pumps. Very little cost is associated with the water that is actually delivered by the water system. This means that as demand goes down, costs do not. Even where costs are projected to remain constant from one year to the next, rate increases would be required to offset declining demand and keep revenues constant. More information on retail demand can be found under “Section V: Demand.”

B. Hydrant Services

Fire hydrants provide water used by public fire departments to fight fires. In order to more closely associate the cost of providing water for fire fighting with the customers that use this water, SPU will continue to charge local governments an annual fee for fire hydrants:

Proposed Annual Hydrant Fees

		2006		2007		2008
Hydrant on 4-Inch Main	\$	114.08	\$	166.45	\$	175.32
Hydrant on Other Mains	\$	227.02	\$	305.54	\$	321.81

Charging local governments for the fire hydrants that serve them shifts this revenue requirement from Seattle’s retail customers to local governments. In the long term, shifting the cost of hydrant service to the entity responsible for fire protection is expected to help communities deliver fire protection service as efficiently as possible.

1. The Cost of Hydrant Service

Hydrant services cost about \$4.8 million in 2004. Most hydrant service cost is associated with water mains that deliver fire flows to fire hydrants:

Allocation of 2004 Costs to Hydrants

	O&M	Asset	Total
Hydrants	\$ 870,760	\$ 167,174	\$ 1,037,935
Watermains	597,519	2,155,967	2,753,486
Reservoirs	14,501	17,675	32,176
General	837,835	105,386	943,221
Total:	\$ 2,320,615	\$ 2,446,202	\$ 4,766,817

Fire flows are significantly higher than flows for domestic service. As a result, a large portion of the capacity of distribution pipes was installed to provide fire flows. The cost of this fire flow capacity is allocated to hydrants. For more discussion about the allocation of costs to hydrants, please see “Section IV: Cost Allocation.”

2. Hydrant Service Levels

State requirements for hydrant service have become progressively more robust over the last century. Four-inch mains were considered sufficient to provide fire flows when they were originally installed. Now, a minimum of six inches is required, and most areas with both domestic and fire flow demands require eight-inch mains. Roughly one percent of current hydrants are connected to four-inch mains:

Fire Hydrants by Main Size

	Count	Percent
Hydrant on 4-Inch Main	215	1.2%
Hydrant on Other Mains	18,113	98.8%
Total:	18,328	100.0%

SPU has established two different rates for fire service to reflect both the cost and service level differences associated with four-inch mains. Four-inch mains provide substantially lower fire flows than larger mains, so a separate, lower rate for four-inch mains recognizes this service difference. Roughly half of the total cost of hydrant service is associated with oversizing mains to provide fire flow. Because four-inch mains are sufficient for domestic service but generally do not meet current state installation standards for mains supporting hydrants, it is reasonable to exempt hydrants on four-inch mains from watermain costs.

Distribution infrastructure is replaced at the end of its useful life. Four-inch mains will gradually be replaced with eight-inch mains as part of the replacement process. SPU expects that, through the gradual replacement process, all hydrants will be served by six-inch or larger mains. As main replacements occur, fewer hydrants will be eligible for the lower hydrant rate, and the total cost paid by hydrant customers will gradually increase.

3. Hydrant Service Customers

Most fire hydrants owned by SPU are located within the City of Seattle. The majority of other hydrants are in retail service areas just north or south of the city limits:

SPU Hydrant Customers

	Hydrant Count			2006	2007	2008
	4-Inch Mains	Larger Mains	Total	Proposed Bill	Proposed Bill	Proposed Bill
Burien	21	86	107	\$21,919	\$29,772	\$31,357
Lake Forest Park	5	52	57	12,375	16,720	17,610
Seattle	121	16,810	16,931	3,830,010	5,156,235	5,430,765
Shoreline	20	900	920	206,600	278,313	293,131
Unincorporated King County	48	265	313	65,636	88,957	93,694
Total:	215	18,113	18,328	\$4,136,540	\$5,569,998	\$5,866,557

Water furnished at or near the location of a fire is a cost of fire fighting, just as firefighter salaries and fire trucks are. The annual bill for a hydrant will be sent to the city responsible for providing firefighting services at the location of that hydrant. Because over 90% of SPU hydrants are located within the City of Seattle, SPU will bill the City for most of these costs, or about \$5.6 million per year starting in 2007. The City will recover the revenue to pay these costs through the increased water utility tax. As mentioned earlier, 2006 rates were already set by ordinance and therefore new rates will not take effect until 2007.

A large driver of increases to hydrant rates is the elimination of the municipal revenue deduction for purposes of calculating the city B&O tax.

Fire hydrants located on private property are also billed to the jurisdiction providing firefighting services in that area. Within Seattle, approximately 240 hydrants are on private property, and not in or next to public rights-of-way. Examples of these hydrants include a hydrant on a cul-de-sac, 45 hydrants in the Broadmoor community, and 12 hydrants at Seattle Center. None of these areas has a private firefighting service or a use for the hydrants beyond fire protection. In all of these cases, the hydrants exist to provide water for publicly funded firefighting and not for a private benefit distinct from this firefighting.

IV. Cost Allocation

Cost allocation is the process by which the revenue requirement is divided among different customer classes. The 2006-2008 rate proposal employs the same cost allocation framework that was used for the 2002-2004 rate proposal, with the addition of cost allocation to hydrants as described in Section III, B Hydrant Allocation Proposal. The shares of the retail revenue requirement borne by the various direct service customer classes are very similar to those from the last rate study:

Revenue Shares by Customer Class

Customer Class	2003-2004 Rate Study	2006-2008 Rate Study
Residential	50.4%	49.4%
General Service	47.8%	49.3%
Private Fire Service	1.8%	1.3%

The process of cost allocation follows five basic steps:

- Determining a cost basis;
- Determining the component costs of water services;
- Identifying customer classes;
- Identifying the characteristics of each customer class; and
- Determining the cost of service for each customer class, based on the characteristics of each class.

The result of this process is the following revenue requirements:

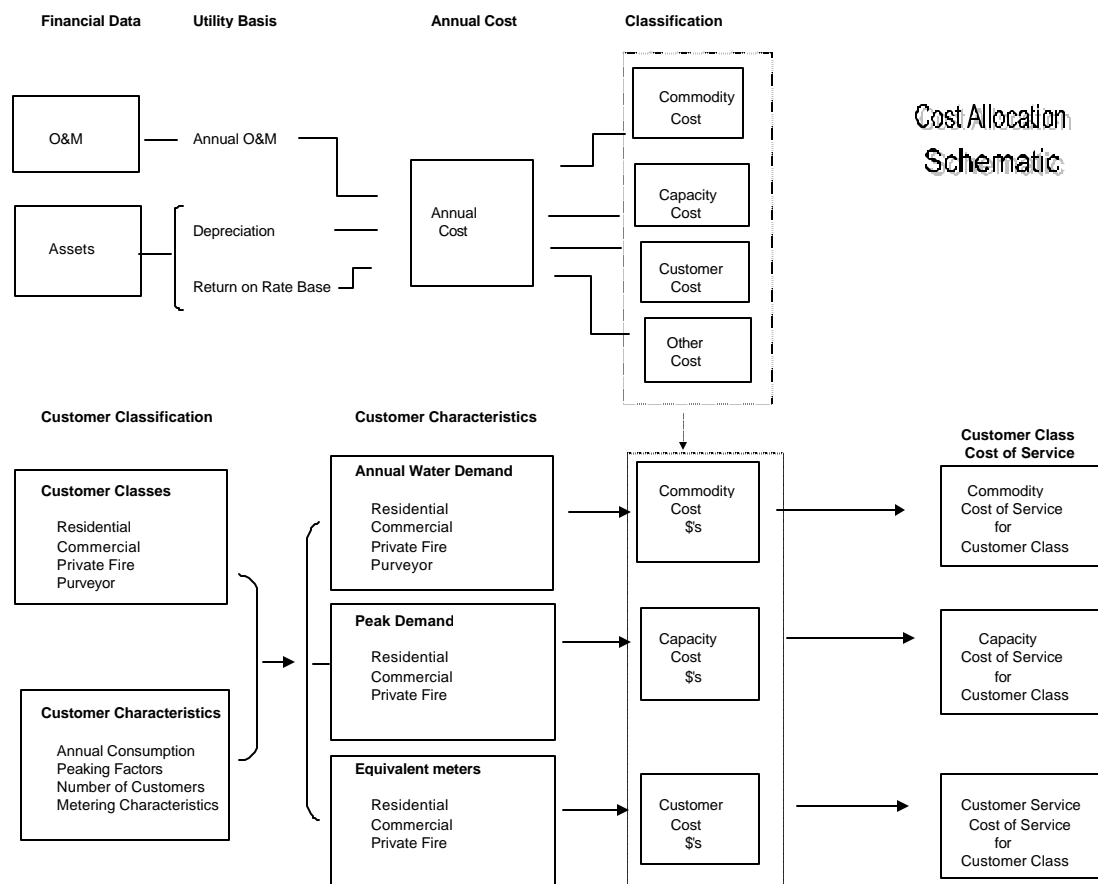
Retail Revenue Requirements

	2005 Revenue Requirement	2006 Cost Allocation	2006	Proposed Revenue 2007	2008
Residential	\$47,265,300	48.6%	\$48,016,416	\$49,265,989	\$51,939,843
General Service	\$46,813,721	48.5%	\$47,824,733	\$49,069,318	\$51,732,499
Private Fire Service	\$2,741,384	2.9%	\$2,784,685	\$2,834,139	\$2,883,593
Total	\$96,820,406	100.0%	\$98,625,834	\$101,169,446	\$106,555,935

Each of these steps is presented in the discussion below, along with a schematic diagram that shows visually how the cost allocation process works. Further details about the cost allocation process can be found in Appendix D: Cost Allocation Details.

A. Schematic Diagram

The following schematic diagram provides a visual road map to the cost allocation process:



There is a complicating factor that is not-explicitly shown in the above diagram. There is a separate cost of service process employed to determine the costs allocated to wholesale customers. As part of that process, supply and transmission costs as defined in the “partial and full-requirements contracts” are determined for both wholesale and retail customers. The cost allocation process outlined in the schematic above simply inputs the retail share of the supply and transmission costs and treats it as a commodity costs.

B. Cost Basis

The 2006-2008 rate proposal employs the same cost framework used in the 2002-2004 rate proposal. Under this framework, the most recent actual cost of service for a past year (2004, in this case) is divided among customer classes. The shares of that past year’s revenue requirement allocated to each customer class are used to allocate the future revenue requirements identified in the rate study.

The 2006-2008 cost allocation uses embedded or average costs calculated according to the “utility basis.” The source of the cost data is 2004 actual costs. Under the utility basis, the cost of service for a year is the sum of the following elements:

- Annual operations and maintenance (O&M) costs;
- Depreciation expenses on assets paid for by rates; and,
- A return on assets calculated on infrastructure in service

The data used for this cost allocation is derived from the water system’s 2004 audited financial statements. O&M costs are the same as audited financial statements except that certain non-cash accrued expenses are excluded. Audited financial statements are also the source of annual depreciation expenses except that depreciation on contributed assets (those assets, like water meters, whose installation was paid for directly by individual customers). The infrastructure in service is also from the financial statements but again excludes contributed assets.

The rate of return on assets (the “interest rate” applied to plant in service) is adjusted so that the total annual cost is the same as actual revenues received. Two rates of return are used in this cost allocation. The rate of return for supply and transmission assets is 6.0%, consistent with the allocation of costs under the “new” type of wholesale service contract. The rate of return on retail assets (i.e., everything that isn’t supply or transmission) is that necessary to match 2004 actual revenues – in this case 3.33%.

Once these rates of return are known, assets (and their annualized costs) are classified by the service or function that is most closely related to that asset. This results in a cost for each service or function that is a component of water service.

C. Component Costs of Water Service

Assets and operating expenses are placed into the following expense categories. These categories reflect the characteristics that drive water system costs:

1. **Regional Cost.** Supply and transmission costs that are considered to be part of the regional water system. Wholesale customers (suburban municipalities and water districts) and Seattle’s retail customers share this regional system. Direct service customers of Seattle represent 52.6% of water used by the regional system (billed plus distribution system non-revenue water).
2. **Commodity Cost.** Costs that vary proportionately with the amount of water provided under average consumption conditions. These costs include electricity costs for pumping and chemical treatment costs. They also include all regional supply and transmission expenses consistent with their treatment in the new wholesale contracts.
3. **Capacity Cost.** Costs that are incurred to meet the maximum rate of use placed on the system by customers. For example, pumps are sized for maximum demands, so the infrastructure cost of pumps is allocated based on peak period demand.
4. **Customer-Related Cost.** The costs that are associated with serving customers independent of the amount of water they use. These include the cost of meter maintenance and repair, meter reading, billing, customer accounting, and the call center.

5. **Public Fire Protection.** This includes the cost of hydrants and the over-sizing of water mains and reservoirs to provide fire flows.

6. **Direct O&M.** These are costs that are directly allocable to the customer classes. Costs include state & city utility taxes, customer billing audits, and the customer service utility teams.

Once assets are categorized, their annual cost is calculated on the utility basis. The sum of asset costs and operating costs provides a cost of each of the service characteristics of the water system:

Cost by Service Characteristic Based on 2004 Actual Financial Data

Annual Cost	System Total	Regional Cost: Commodity	Other Commodity	Capacity	Customer Related	Public Fire
O&M	55,736,472	29,630,208	12,256,226	583,642	11,293,733	\$1,972,663
Depreciation	23,467,248	15,102,013	2,766,955	667,388	4,059,672	\$871,220
Return on Rate Base	44,366,888	34,301,841	3,972,744	507,931	3,954,609	\$1,629,764
Total	\$ 123,570,609	\$ 79,034,062	\$ 18,995,925	\$ 1,758,961	\$ 19,308,014	\$ 4,473,647

The annual cost of each of these categories is divided among customer classes based on customer characteristics.

D. Customer Classes

Customers belong to one of two broad classes: wholesale (purveyors) and retail. Retail customers are further divided into:

1. **Residential.** Customers living in single family or duplex residences.
2. **General Service.** Commercial, governmental, and industrial customers as well as multi-family residential structures.
3. **Private Fire.** The separately metered connections provided to General Service customers for fire-protection sprinkler systems installed on their own property. These customers pay a separate rate for these services in addition to their General Service rates for their domestic services.
4. **Public Fire.** The governmental agencies responsible for providing public fire protection.

Costs are assigned to these customer classes based on how the characteristics of each class drive water system costs.

E. Customer Class Characteristics

The following key customer characteristics are used to allocate the water system expenses to each customer class:

Key Customer Characteristics

Customer Class	Peak Day Factor	Peak Week Factor	Annual CCF	Equivalent Meters	No. of Accounts
Residential	2.67	2.25	12,401,047	159,033	155,233
General Service	1.27	1.20	17,575,417	47,958	28,980
Private Fire	1.00	1.00	17,667	20,568	5,540
Total			29,994,131	227,559	189,753

1. **Annual CCF.** This is the 2004 actual consumption for each customer class in hundreds of cubic feet (CCF). It is used to allocate regional costs and non-regional commodity costs.
2. **Peak Day Factor and Peak Week Factor.** The peak day and peak week factors for the estimates in the table above were derived from demand metering data in areas that are either primarily residential or primarily commercial. This information is more than 10 years old, but is very costly to obtain. These factors are used in the allocation of capacity costs.
3. **Equivalent Meters.** Equivalent Meters are the number of meters by size (3/4", 1", 1.5"...) weighted by the associated cost of installing and servicing the meter (See table below)
4. **Number of Accounts.** The number of accounts in each customer class. This characteristic is used to allocate customer-related costs.

Meter Counts & Equivalencies								
		Residential		General Service		Fire Service		
Meter Size	Equiv Factor (cost)	# of Meters	Equiv Meters	# of Meters	Equiv Meters	Fire equiv factor	# of Meters	Equiv Meters
3/4"	1.00	134,836	134,836	7,454	7,454	1.00	1	1
1"	1.13	15,144	17,170	5,468	6,200	1.13	3	3
1.5"	2.02	1,130	2,286	3,547	7,174	2.02	1	2
2"	2.37	423	1,003	4,222	10,014	2.37	443	1,051
3"	9.06	1	9	415	3,759	9.06	32	290
4"	9.51	1	10	578	5,500	9.51	1,130	10,752
6"	12.28	0	-	292	3,585	12.28	995	12,215
8"	16.37	1	16	133	2,177	16.37	668	10,934
10"	20.46	0	-	39	798	20.46	29	593
12"	24.55	0	-	3	74	24.55	8	196
16"	32.74	0	-	0	-	32.74	0	-
20"	40.92	0	-	2	82	40.92	0	-
24"	49.11	0	-	0	-	49.11	0	-
Total		151,536	155,330	22,153	46,815		3,310	36,038
No. of Bills		155,233		28,980			5,540	

F. Customer Class Cost of Service

The final step in the cost allocation process is to allocate water system expense categories (commodity, capacity, etc.) to the customer classes using the Customer Characteristics data. The result of this allocation is shown below:

Allocation of 2004 Water System Retail Costs

Direct Service: O&M, Depreciation, & Rate of Return on Assets						
Categories	Residential	General Service	Private Fire	Public	Fire	Total
Regional System	17,248,607	24,445,634	24,573		-	\$41,718,814
Other Commodity	9,755,587	13,826,132	13,898		-	\$23,595,617
Capacity	1,090,802	816,358	681			\$1,907,840
Customer-related	15,177,939	4,017,647	1,106,353		-	\$20,301,939
Public Fires					4,766,769	\$4,766,769
Direct Service Tot:	\$ 43,272,935	\$ 43,105,771	\$ 1,145,505	\$	4,766,769	\$ 92,290,979

The table above, showing the cost of service for 2004, serves as the beginning for the allocation of revenue requirements for the rate period 2006-08. The simplest approach would be to calculate the cost shares for each customer class and to use the cost shares to allocate the revenue requirement for each future year. This would automatically factor in taxes and make an adjustment for cost increases in future years. A somewhat more complicated approach is needed to deal with the special circumstances of the Private Fire class and the Public Fire class. The revenue from Private Fire rates are such a small part of the revenue requirement that small changes in their share of costs lead to unacceptably large changes in their rates. Therefore private fire rates are either increased gradually if the cost study supports a cost increase, or left as is if the cost study supports a decrease. Another adjustment is needed for Public Fire rates. These rates have already been set for 2006 in an earlier rate review, so adjustments for public fire customers would not take effect until 2007.

The following table shows the 2006-2008 cost allocation, including the effects of taxes and incorporating the treatment of private fire rates and public fire rates (described above):

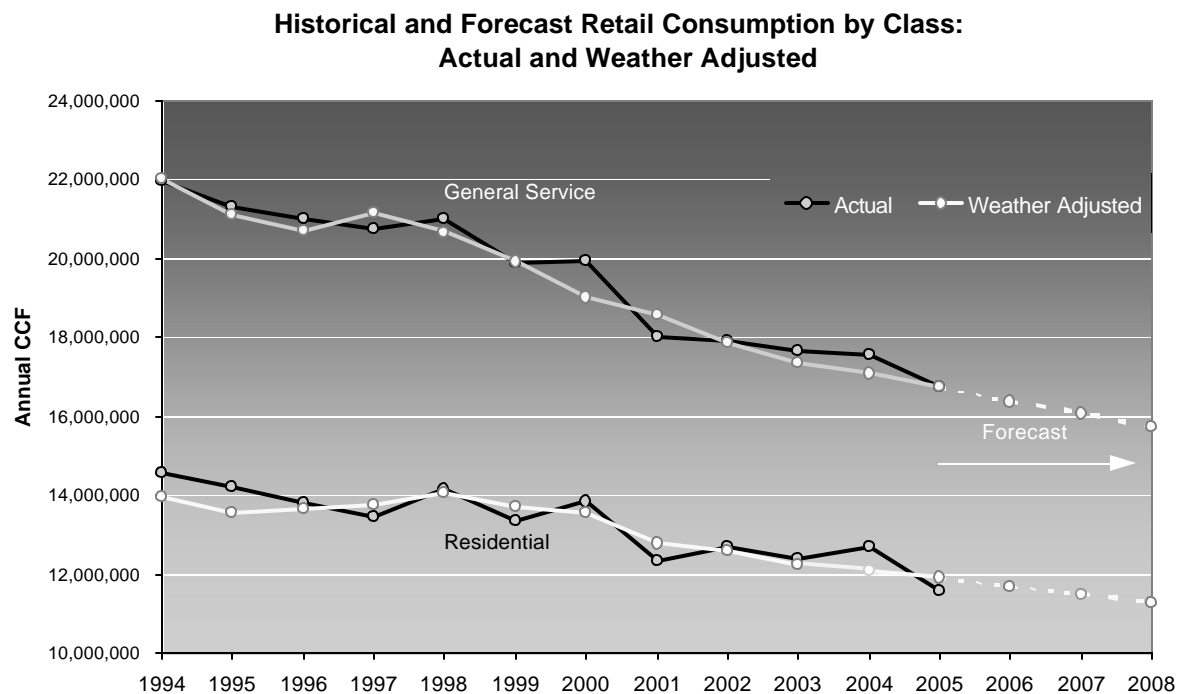
	2005 Revenue Requirement	Raw Cost Allocation	2006 Adjusted Cost Allocation	2006	Proposed Revenue 2007	2008
Residential	\$47,265,300	46.9%	46.1%	\$48,016,416	\$49,265,989	\$51,939,843
General Service	\$46,813,721	46.6%	46.0%	\$47,824,733	\$49,069,318	\$51,732,499
Private Fire Service	\$2,741,384	1.3%	2.7%	\$2,784,685	\$2,834,139	\$2,883,593
Public Fire Service	\$4,046,757	5.2%	5.2%	\$4,136,540	\$5,569,998	\$5,866,557
Total	\$100,867,163	100.0%	100.0%	\$102,762,374	\$106,739,444	\$112,422,492

These revenue requirements are collected through rates charged for units of demand.

V. Demand

The volume of water sold to retail customers is expected to decline by about 2.1% in 2006 (from 2005 forecast), 1.9% in 2007 and 2.0% in 2008. Sales to general service customers are generally declining faster (about 2.0% per year) than sales to residential customers (about 1.8% per year). In order to maintain required revenues, water rates have to rise to offset this reduction in demand.

These declines continue a downward trend that started in the early 1990's as can be seen in the graph below:



This downward trend increased in recent years as a result of the 1% conservation program, slowing population growth and declining employment. However, employment levels began increasing in the region in 2004 and are forecast to continue to increase in the coming years.

The short-term forecasting model is based on employment and an underlying trend in consumption associated with increased efficiency in water use. In the early- and mid-1990's, growth in employment offset some of the decrease in general service demand caused by efficiency gains in water use. From 2001 to 2003 the local economic climate was such that employment actually fell, magnifying the decline in demand. In 2004 and 2005, employment has been increasing but demand is still falling.

The results of the short term water demand model for residential and general service customers are shown in the graph above and on the following page.

Short Term Water Consumption Forecasts
(Annual CCF)

Year	Residential		Commercial		Total	
	Consumption (CCF)	Percentage Change	Consumption (CCF)	Percentage Change	Consumption (CCF)	Percentage Change
Actual/Projected						
2004	12,401,047		17,575,417		29,976,464	
2005	11,586,977		16,566,750		28,153,727	
Short-Term Demand Model Results						
2005	11,930,000		16,770,000		28,700,000	
2006	11,700,000	-1.9%	16,390,000	-2.3%	28,090,000	-2.1%
2007	11,490,000	-1.8%	16,060,000	-2.0%	27,560,000	-1.9%
2008	11,300,000	-1.7%	15,720,000	-2.1%	27,020,000	-2.0%

The demand model takes into account expected conservation savings and the latest forecast of employment growth. Actual consumption in 2005 is lower than model results due to conservation messaging early in the year and the impact of the relatively cool and wet early summer period on peak demand. Because a significant quantity of water is used for irrigation purposes during the summer, water sales depend on summer weather. The model used to forecast demand for this rate study assumes the weather of a “normal” year in which summer weather is not particularly wet, dry, hot or cool. Actual demand will vary from forecast because summer weather varies.

The sizes of the proposed rate adjustments are different than the changes in the revenue requirements for several reasons including reduced demand. For example, while the proposed residential revenue requirement for 2006 represents an increase of approximately 1.6% from the original forecast¹ of 2005 residential revenue, there is a 14.5% increase proposed for the base service charge which partly reflects the fact that consumption is falling. The proposed 2006 general service revenue requirement is more than the original forecast of 2005 revenue by approximately 2.2%, but the base service charge is being raised the same as for residential customers and the off-peak commodity rate is being increased by 20.5%. In general, rates must increase more than the increase in revenue requirements at least in part to offset the revenue impact of declining demand.

The percentage changes in rates and revenue requirements proposed for the general service and residential classes are not the same. General Service rates and revenue requirements increase more than those proposed for residential customers. A significant factor is that general service demand has declined more rapidly than residential demand since 2002 and this trend is projected to continue.

¹ The forecast of 2005 residential revenue associated with the revenue tables of the 2005 adopted budget.

VI. Rate Design

Rate design is the last element of the rate study, following the determination of overall revenue requirements and the allocation of those requirements among customer classes. Rates are designed to collect the proper amount of revenue from each customer class (as determined by the first two elements of the rate study) and to meet certain policy objectives and principles.

This rate study follows many of the policies outlined in previous rate studies with a few changes to enhance economic efficiency, revenue stability and maintain consistent rates for similar services between rate classes. Perhaps the most significant change is the proposal to raise the base service charge proportionally more than the commodity rates for the residential and commercial classes. Recent rate studies have typically proposed proportional increases in rates. This study proposes to increase the base service charge proportionally more in order to increase economic efficiency and revenue stability. Economic efficiency is enhanced when fixed costs (those unrelated to consumption) are recovered through fixed fees. Revenue stability is enhanced because fixed fees are not affected by the weather or other determinants of consumption behavior. For General Service customers this raise in base service charge together with an unchanging peak rate requires an increase in the off-peak commodity rate. Other elements of the rate study have not changed from previous studies. For example, general service and residential rates have converged over time such that the peak season general service rate became equal to the second block residential rate in 2004. This feature is carried forward in this study with general service rates set such that the peak rate matches the second tier residential peak rate. The remaining increased revenue requirements are recovered via the base service charge and the off-peak rate. Private fire service rates remain constant at their 2005 level.

The proposed rates increase the typical monthly residential bill 4.2% (\$1.00) in 2006, 2.4% (\$0.59) in 2007, and 6.5% (\$1.66) in 2008. The net increase over the three-year period (at constant consumption) is 13.6% (\$3.25). The exact increase in general service bills varies based on consumption and meter size, but for most customers would be approximately 10% in 2006, a reduction of approximately 1.0% in 2007 and an increase of 8% in 2008. Under this proposal, the proprietor of a convenience store can expect an increased monthly water bill of \$6.19 in 2006, a decrease of \$0.21 in 2007 and an increase of \$5.41 in 2008.

A. Objectives

The formulation of rate design policy objectives includes input from the Rate Advisory Committee and SPU staff. The objectives of rate design include the following:

- Provide financial soundness;
- Advance economic efficiency;
- Promote customer equity;
- Encourage customer conservation;
- Contribute to transparency and customer understanding; and,
- Reduce impacts on low income customers.

Certain of the policy objectives imply different directions in rate design than others. The appropriate rate design must be a compromise, which strikes the best overall balance among conflicting objectives. However, the first of the above objectives is overriding and should be met by all rate designs considered. The final objective is partly met by a citywide program to provide discounts to low income and disabled

customers in which SPU participates. Finally, the rate design must comply with legal and contractual requirements and be feasible from a metering and billing standpoint.

B. Direct Service Rate Design

SPU has developed a rate design for each customer class that strikes a balance between sometimes conflicting rate objectives. Another goal of the proposed retail rate design in addition to the general objectives outlined above is to bring general service and residential rates into parity. This goal is substantially achieved over this rate period due to the increase in the general service off-peak rate. In all cases (except City of Shoreline customers), outside city rates are 14% greater than inside city rates in accordance with the policy established in the 1995-1996 rate study. In-City rates are provided below except where specifically indicated. For City of Shoreline customers, this rate study proposes that rates be 20% higher than in-city rates to reflect the City of Shoreline franchise fee (see Section 6). Overall, this rate design proposal is set to collect the allocated revenue requirements.

1. Residential Rate Design

The proposed residential rate design listed in the table below for 2006-2008 indicates that a majority of the required revenue increase is to be recovered via an increase in the base service charge. The off-peak rate is increased by \$0.01 in 2007 and by \$0.15 in 2008.

Proposed Residential Rate Design

	Current Rate	2006	2007	2008
Off-Peak (\$/ccf)	\$2.53	\$2.53	\$2.54	\$2.69
Peak (\$/ccf)				
Up to 5 ccf/mo	\$2.88	\$2.88	\$2.88	\$2.88
Next 13 ccf/mo	\$3.35	\$3.35	\$3.35	\$3.35
Above 18 ccf/month	\$8.55	\$8.55	\$8.55	\$8.55
Base Service Charge (\$/mo)				
3/4"	\$6.90	\$7.90	\$8.45	\$9.55
1"	\$8.75	\$8.75	\$9.05	\$10.20
1 1/2"	\$14.30	\$14.30	\$14.30	\$14.70
2"	\$22.00	\$22.00	\$22.00	\$22.00
3"	\$42.00	\$46.50	\$49.70	\$56.20
4"	\$65.00	\$77.50	\$83.00	\$93.70

The proposed base service charges are increased for some meter sizes for 2006, 2007 and 2008 to better recover fixed costs, which represent a significant portion of overall costs. The rates have been changed within meter classes to better reflect cost of service as is further explained in Section 3. For residential meters, this results in an increase in the 3/4" meter base service charge of about 14.5% or \$1.00 per month starting in 2006 and a 7.0% increase (or \$0.55/month) in 2007. The base service charge increases by \$1.10 (13.0%) in 2008. The third tier peak rate is kept constant at the current rate of \$8.55 per ccf for 2006-2008.

These proposed rates would increase a typical single family residential bill by \$1.00 per month in 2006, \$0.59 per month in 2007 and by \$1.66 in 2008 (given constant consumption). The impacts vary based on the amount of water used and those using lower volumes will have a proportionately larger increase.

CUSTOMER TYPE	MONTHLY CONSUMPTION		MONTHLY RESIDENTIAL BILLS									
			2005 Adopted	2006 Proposed	Change from 2005*	% Change 2005-2006	2007 Proposed	Change from 2006	% Change 2006-2007	2008 Proposed	Change from 2007	% Change 2007-2008
Low Volume User (15th %tile)	Winter	2.9	\$14.24	\$15.24	\$1.00	7.0%	\$15.82	\$0.58	3.8%	\$17.35	\$1.54	9.7%
	Summer	3.8	\$17.84	\$18.84	\$1.00	5.6%	\$19.39	\$0.55	2.9%	\$20.49	\$1.10	5.7%
	Average	3.2	\$15.44	\$16.44	\$1.00	6.5%	\$17.01	\$0.57	3.5%	\$18.40	\$1.39	8.2%
Median User (50th %tile)	Winter	5.6	\$21.07	\$22.07	\$1.00	4.7%	\$22.67	\$0.61	2.7%	\$24.61	\$1.94	8.6%
	Summer	7.4	\$29.34	\$30.34	\$1.00	3.4%	\$30.89	\$0.55	1.8%	\$31.99	\$1.10	3.6%
	Average	6.2	\$23.83	\$24.83	\$1.00	4.2%	\$25.41	\$0.59	2.4%	\$27.07	\$1.66	6.5%
High Volume User (85th %tile)	Winter	9.8	\$31.69	\$32.69	\$1.00	3.2%	\$33.34	\$0.65	2.0%	\$35.91	\$2.57	7.7%
	Summer	13.4	\$49.44	\$50.44	\$1.00	2.0%	\$50.99	\$0.55	1.1%	\$52.09	\$1.10	2.2%
	Average	11.0	\$37.61	\$38.61	\$1.00	2.7%	\$39.22	\$0.62	1.6%	\$41.30	\$2.08	5.3%

* Change is measured assuming new rates in effect (after May 15, 2006)

2. Low Income Utility Credit

The City subsidizes qualified low-income customers by giving them discounts on their utility bills. Assistance on water bills is made available to elderly and disabled customers who earn less than 70% of the state median income. The income standard for all other customers to be considered low-income is 200% of the Federal Poverty Standard.

Currently, about 9,800 water customers receive credits. About two thirds of these low income assistance customers receive their credit on their SPU bill while the other third receive their credit through their City Light bill. The City Light bill is used as the transfer mechanism for customers who do not directly receive a SPU bill. Customers living in apartment complexes will typically receive a City Light bill but their other utility costs for water, wastewater, and solid waste will be included in their rent.

Qualified low-income customers receive a 50% discount on their water rates. For customers billed by SPU, the discount cuts their bill in half. Customers who do not directly receive a bill from SPU receive a fixed dollar credit via their City Light bill, which approximates the 50% discount. The proposed discounts for 2006 through 2008 are as follows.

Proposed Rate Assistance Discounts

Customer-type	Current	2006	2007	2008
SPU-billed customers	50% Discount	50% Discount	50% Discount	50% Discount
Non-SPU-billed customers				
Single-family (Residential)	\$11.90/month	\$12.40/month	\$12.70/month	\$13.55/month
Multi-family (Gen. Serv.)	\$5.30/month	\$5.80/month	\$5.75/month	\$6.20/month

3. General Service Rate Design

The proposed general service rate design shown in the tables below reflects in part the goal of bringing general service and residential rates into parity. For most of the years since the separate classes were created in 1981, general service rates have been considerably less than residential rates. The rates have become closer in recent years after the change in cost allocation methods shifted some costs to the general service class. By 2004, the general service peak rate had caught up with the residential (2nd tier) peak rate and the off-peak rate was 79% of the residential off-peak rate. The overall percentage increase in general service rates will be more than for residential rates in 2006. To get closer to the goal of reaching parity between the classes, the general service peak rate continues to be constrained to be the same as the residential 2nd-block peak rate for 2006-2008. That leaves the off-peak rate and base service charge to absorb the remaining revenue requirements. The base service charge is constrained to be the same as the residential base service charge though the revenue obtained from the commercial class through the base service charge is significantly lower than the residential class. Therefore, to achieve the revenue required for the general service class, this proposal increases the off-peak rate by \$0.41 or 21.0% in 2006 with no change in the general service peak rate. The proposed 2007 general service rates include a 2.5% reduction in the off-peak rate². The proposed 2008 general service rates involve a 14.5% increase in the off-peak rate. The proposed rates reduce the ratio of peak to off-peak rates from almost 1.7 in 2005 to 1.39 in 2006, 1.43 in 2007 and 1.25 in 2008. As with the residential class, changes in base service charges are proposed for 2006, 2007 and 2008.

Proposed General Service Commodity Rates

	Current Rates	2006	2007	2008
Off-Peak (\$/ccf)	\$2.00	\$2.41	\$2.35	\$2.69
Peak (\$/ccf)	\$3.35	\$3.35	\$3.35	\$3.35

Proposed General Service Base Service Charges

Meter Size	Current Charges	2006	2007	2008
3/4"	\$6.90	\$7.90	\$8.45	\$9.55
1"	\$8.75	\$8.75	\$9.05	\$10.20
1.5"	\$14.30	\$14.30	\$14.30	\$14.70
2"	\$22.00	\$22.00	\$22.00	\$22.00
3"	\$42.00	\$46.50	\$49.70	\$56.20
4"	\$65.00	\$77.50	\$83.00	\$93.70
6"	\$127.00	\$127.00	\$127.00	\$127.30
8"	\$202.00	\$202.00	\$202.00	\$202.00
10"	\$302.00	\$302.00	\$302.00	\$302.00
12"	\$428.00	\$428.00	\$428.00	\$428.00
16"	\$716.00	\$716.00	\$716.00	\$716.00
20"	\$1,042.00	\$1,042.00	\$1,042.00	\$1,042.00
24"	\$1,668.00	\$1,668.00	\$1,668.00	\$1,668.00

² From the revised 2006 rates.

The base service charge is intended to recover the costs of providing water service that are unrelated to the volume of water provided. These include billing costs³, customer service costs⁴ and a portion of general and administrative costs. Some of these costs are related to the size of the water meter and some are not. In the past, lack of cost data by meter size necessitated the use of crude proxies to determine the cost progression by size. For many years, equivalent flow factors were used resulting in a relatively steep progression (since flows increase with the square of the radius of the service line). In the 2002-2004 rate study, it was decided that meter installation costs provided a better indicator of relative costs than equivalent flows. This produced a much flatter cost progression to be applied to setting the base service charges and would have resulted in raising the charges for smaller meters and lowering the charges for larger meters. In order to ease the transition to the new cost progression, the general policy was to allow the base service charge on a particular meter size to rise if the current charge was below what was suggested by the new cost progression. Where the base service charge was already higher than calculated under the new method, the current charge was held constant.

Additional cost data is now available for most meter sizes. A new cost progression was developed based on (i) the annualized costs, by meter size, of meter maintenance, testing, repairs, replacements, and service renewals; and, (ii) annual customer costs that are independent of meter size. The result was very close to the cost progression based on meter installation costs. This new cost progression is used for this study. Given the current and proposed base service charges for a ¾" meter, the new cost progression would imply reduced charges for some of the larger meters. This rate study continues the 2002-2004 rate study practice of increasing the charge if the new progression indicates the current charge is too low. This includes the ¾", 1", 1-1/2", 3", 4" and 6" meter sizes for some or all years as listed above.

The proposed rates will affect general service customers more or less depending on the current volume of water used. Most general service customers will see changes in their monthly bills of about a 10% increase in 2006, a 1% decrease in 2007 and an 8% increase in 2008.

CUSTOMER TYPE	MONTHLY CONSUMPTION	MONTHLY GENERAL SERVICE BILLS										
		2005	2006	Change	% Change	2007	Change	% Change	2008	Change	% Change	
		Adopted	Proposed	from 2005*	2005-2006	Proposed	from 2006	2006-2007	Proposed	from 2007	2007-2008	
Convenience Store (3/4" meter)	Winter	19	\$44.90	\$53.69	\$8.79	19.6%	\$53.10	(\$0.59)	-1.1%	\$60.66	\$7.56	14.2%
	Summer	22	\$80.60	\$81.60	\$1.00	1.2%	\$82.15	\$0.55	0.7%	\$83.25	\$1.10	1.3%
	Average	20	\$56.80	\$62.99	\$6.19	10.9%	\$62.78	(\$0.21)	-0.3%	\$68.19	\$5.41	8.6%
Apartment Bldg (15 units) (1" meter)	Winter	57	\$122.75	\$146.12	\$23.37	19.0%	\$143.00	(\$3.12)	-2.1%	\$163.53	\$20.53	14.4%
	Summer	66	\$229.85	\$229.85	\$0.00	0.0%	\$230.15	\$0.30	0.1%	\$231.30	\$1.15	0.5%
	Average	60	\$158.45	\$174.03	\$15.58	9.8%	\$172.05	(\$1.98)	-1.1%	\$186.12	\$14.07	8.2%
City Hall (4" meter)	Winter	750	\$1,565	\$1,885	\$320	20.4%	\$1,845	(\$40)	-2.1%	\$2,111	\$266	14.4%
	Summer	900	\$3,080	\$3,093	\$13	0.4%	\$3,098	\$5	0.2%	\$3,109	\$11	0.3%
	Average	800	\$2,070	\$2,288	\$218	10.5%	\$2,263	(\$25)	-1.1%	\$2,444	\$181	8.0%
Large Industrial (8" meter)	Winter	3800	\$7,802	\$9,360	\$1,558	20.0%	\$9,132	(\$228)	-2.4%	\$10,424	\$1,292	14.1%
	Summer	4400	\$14,942	\$14,942	\$0	0.0%	\$14,942	\$0	0.0%	\$14,942	\$0	0.0%
	Average	4000	\$10,182	\$11,221	\$1,039	10.2%	\$11,069	(\$152)	-1.4%	\$11,930	\$861	7.8%

* Change is measured assuming new rates in effect (after May 15, 2006)

³ Meter reading, billing, credit and collection, customer account information, etc.

⁴ The bulk of which is meter and service line O&M and replacement but also includes customer accounting.

4. Master-Metered Residential Developments

In 1995, a new rate class was established for master metered residential developments (MMRD). These are residential developments with master meters of 1½" or larger, which operate and maintain their own distribution systems on private property that use water primarily to serve single family, detached residences on at least two separate legal parcels. In developing the rate for this class, the Council chose to apply residential rates to master-metered developments *in the peak season*. Because of irrigation demands, master-metered developments share with the residential class a pronounced peaking pattern. Accordingly, the Council felt that master-metered developments should face the same summer conservation price signal as residential customers. Using the off-peak residential rate for the master-metered class was judged inappropriate, however, because, at the time, the master-metered class was less costly to serve and because the residential rate had a considerable amount of base-service-related cost⁵ loaded into it⁶. The off-peak rate was set at 12% above the general service off-peak rate.

The general service off-peak rate has been getting closer to the residential off-peak rate and the differential between the MMRD off-peak rate and the residential off-peak rate has been reduced. In 2005 the MMRD off-peak rate was \$0.33 per ccf less than the residential off-peak rate. For 2006 through 2008, the off-peak rates are proposed to match the residential off-peak rate because pricing at 12% above the general service rate as per previous policy would lead to higher off-peak rates for the MMRD's than for residential customers.

The proposed MMRD rates are presented in the table below. Note that since all current MMRD customers are outside the city limits of Seattle, the "Outside City" rates are quoted in the table. These are 14% higher than inside City rates. Customers located in the City of Shoreline will pay 6% more than these rates to reflect the franchise fee charged by the City of Shoreline (see Section 6).

Proposed Master-Metered Residential Development Rates (Outside City)

	Current Rates	2006	2007	2008
Off-Peak (\$/ccf)	\$2.55	\$2.88	\$2.90	\$3.07
Peak (\$/ccf)				
Up to 5 ccf/mo*	\$3.28	\$3.28	\$3.28	\$3.28
Next 13 ccf/mo*	\$3.82	\$3.82	\$3.82	\$3.82
Over 18 ccf/mo*	\$9.75	\$9.75	\$9.75	\$9.75
Base Service Charge (\$/month)				
1 1/2"	\$16.30	\$16.30	\$16.30	\$16.80
2"	\$25.10	\$25.10	\$25.10	\$25.10
3"	\$48.00	\$53.00	\$56.70	\$64.10
4"	\$74.00	\$88.40	\$94.60	\$106.80
6"	\$145.00	\$145.00	\$145.00	\$145.00
8"	\$230.00	\$230.00	\$230.00	\$230.00
10"	\$344.00	\$344.00	\$344.00	\$344.00

* per single family residence in the master-metered development

5. Private Fire Service

No changes are proposed for private fire service rates for 2006 through 2008.

⁵ Costs that were not directly recouped through the base service charge.

⁶ This is no longer the case.

Private fire service rates have been set independent of the share of costs allocated to fire service since the 1997-1998 rate study. At that time, it was pointed out that private fire service revenue requirements had always represented a very small percent of total retail revenue requirements and that made them susceptible to wide swings from one rate study to the next. A small change in the overall allocation of costs could cause the revenue required from private fire service to double or be cut in half. For that reason, fire service revenue requirements were removed from the cost allocation process and have represented a fixed percent (about 2.7%) of total revenue requirements ever since.

The switch from marginal to average cost allocation that occurred in the 2002-2004 rate study may result in more stable cost allocation shares over time. Both the 2002-2004 and 2005-2006 rate studies calculated that the costs that should be allocated to private fire service are about 1.8% of total retail costs. The percentage calculated for this rate study is 1.25%.

Since the percent of revenue generated from private fire service at current rates (2.7%) is greater than the cost share implied by the current cost allocation process, it is proposed that fire service rates be held constant for 2006 through 2008. The small increase in fire service *revenue* projected for 2006 through 2008 is due to anticipated growth in private fire service connections. Proposed fire service rates for inside city customers are presented in the tables below.

Proposed Private Fire Service Base Service Charges

Meter Size	Current	2006	2007	2008
2"	\$ 15.40	\$ 15.40	\$ 15.40	\$ 15.40
3"	\$ 20.00	\$ 20.00	\$ 20.00	\$ 20.00
4"	\$ 37.00	\$ 37.00	\$ 37.00	\$ 37.00
6"	\$ 63.00	\$ 63.00	\$ 63.00	\$ 63.00
8"	\$ 100.00	\$ 100.00	\$ 100.00	\$ 100.00
10"	\$ 144.00	\$ 144.00	\$ 144.00	\$ 144.00
12"	\$ 210.00	\$ 210.00	\$ 210.00	\$ 210.00

Proposed Private Fire Service Commodity Rate

	Current	2006	2007	2008
Penalty Charge (\$/ccf)*	\$20.00	\$20.00	\$20.00	\$20.00

* The penalty charge applies only to consumption in excess of the allowance for testing and pump cooling. The monthly allowance is 5 ccf for meters up to 6" and 10 ccf for meters 8" and larger.

A penalty charge is assessed on non-fire related consumption through private fire meters that exceed a monthly allowance provided for testing and in some cases, pump-cooling. Water Service staff report that improper use of fire service water is due primarily to mistakes (such as unintentional cross connections) rather than a conscious intent to defraud. A penalty rate of \$20.00 per ccf is currently in effect with the intent, as in the past, of getting the customers' attention, not punishing them, for improper consumption through fire service lines. No change in the current penalty rate is proposed for 2006 through 2008.

6. Shoreline Franchise Fee

The current rates for customers located in the City of Shoreline include a charge per connection that is used to pay the franchise fee that is assessed by Shoreline. Currently, the charge per premise per month is \$1.75 for residential customers, \$1,093.75 for MMRD's and \$13.60 for commercial customers. This fee was determined based on the number of customer connections located in Shoreline. However, SPU is required to remit 6% of total revenue to the City of Shoreline. If consumption matches what is forecast it is possible to estimate the franchise fee revenue relatively accurately and set the connection charge accordingly. However, if consumption is higher than expected due to unusual weather or other factors, SPU will not recover enough revenue to cover the franchise fee cost.

This study proposes creating a new direct service customer class for City of Shoreline customers. All customers that are located outside the City of Seattle, but inside the City of Shoreline will pay rates that are 20% higher⁷ than in-city customers. Fourteen percent (14%) is for being located outside the City of Seattle and 6% is to cover the Shoreline franchise fee. This will allow for the exact amount of revenue required to meet the franchise requirements to be collected and eliminate the risk that SPU will under-collect in any given year. The rates for residential customers are listed below. Commercial, MMRD and fire service customers will face the same rate structure as in-City customers only the rates will be approximately 20% higher.

Proposed Residential Rate Design

	Current Rate	2006	2007	2008
Off-Peak (\$/ccf)	\$2.88	\$3.07	\$3.08	\$3.26
Peak (\$/ccf)				
Up to 5 ccf/mo	\$3.28	\$3.49	\$3.49	\$3.49
Next 13 ccf/mo	\$3.82	\$4.06	\$4.06	\$4.06
Above 18 ccf/month	\$9.75	\$10.37	\$10.37	\$10.37
Base Service Charge (\$/mo)				
3/4"	\$7.90	\$9.60	\$10.20	\$11.60
1"	\$10.00	\$10.60	\$11.00	\$12.40
1 1/2"	\$16.30	\$17.30	\$17.30	\$17.80
2"	\$25.10	\$26.70	\$26.70	\$26.70

⁷ The multiplier is 1.212765.

Appendix A: 1982 Wholesale Contract Rate Study

Seattle Public Utilities 2006-2008 Wholesale Water Rate Study 1982 Contracts

A. Summary

Seattle proposes to adjust wholesale water rates for the May 16, 2006 – December 31, 2008 period as shown below. For the period January 1, 2006 – May 15, 2006, the previously adopted 2006 rates will be in effect.

	2005	2006 1/1 - 5/15	2006 5/16 - 12/31	2007	2008
Old Water (per ccf)					
Off Peak	\$ 0.96	\$ 0.96	\$ 0.96	\$ 1.02	\$ 1.08
Peak	\$ 1.48	\$ 1.48	\$ 1.48	\$ 1.57	\$ 1.67
Percent Increase			0%	6%	6%
Growth Charge (per ccf)	\$ 0.40	\$ 0.40	\$ 0.94	\$ 0.81	\$ 0.91
Percent Increase			135%	(14%)	12%
Demand Charge	\$ 22.00	\$ 22.00	\$ 22.00	\$ 22.00	\$ 22.00
Base Service Charge (per month)					
1"	\$ 54.00	\$ 54.00	\$ 54.00	\$ 54.00	\$ 54.00
1-1/2"	\$ 60.00	\$ 60.00	\$ 60.00	\$ 60.00	\$ 60.00
2"	\$ 66.00	\$ 66.00	\$ 66.00	\$ 66.00	\$ 66.00
3"	\$ 78.00	\$ 78.00	\$ 78.00	\$ 78.00	\$ 78.00
4"	\$ 108.00	\$ 108.00	\$ 108.00	\$ 108.00	\$ 108.00
6"	\$ 192.00	\$ 192.00	\$ 192.00	\$ 192.00	\$ 192.00
8"	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00	\$ 300.00
10"	\$ 450.00	\$ 450.00	\$ 450.00	\$ 450.00	\$ 450.00
12"	\$ 528.00	\$ 528.00	\$ 528.00	\$ 528.00	\$ 528.00
16"	\$ 696.00	\$ 696.00	\$ 696.00	\$ 696.00	\$ 696.00
20"	\$ 948.00	\$ 948.00	\$ 948.00	\$ 948.00	\$ 948.00
24"	\$ 1,236.00	\$ 1,236.00	\$ 1,236.00	\$ 1,236.00	\$ 1,236.00

Under the proposal, old water rates (both peak and off-peak) would remain flat through the end of 2006 and would increase 6% in 2007 and 2008. The primary drivers for the Old Water rate increases are increases in Security, Water Supply, and Water Treatment O&M. New water rates increase significantly due to the depletion of the Purveyor Account Balance New Water surplus during the wet cold weather in 2005 rather than any increases in costs. The bill impact of the new rates would vary considerably for individual customers in 2006. Those with the largest proportion of new water could see their bills increase significantly while customers with no new water will see no change.

Since the last rate study in 2002, fifteen customers have signed new contracts with Seattle, and the rates of these “new contract” purveyors are different from rates set under this rate study. In order to ensure that Purveyors remaining under the 1982 contract are not adversely affected by the contract changes, rates for the 1982 contract are set “as-if” all purveyors are still under the 1982 contract. Costs considered in this rate study and annual “true-up” calculations are the costs of serving all customers who signed the 1982 contracts. Revenues are those revenues that have been or will be received from customers served under 1982 contract, plus revenues that SPU would have received had signatories to 1982 contracts not switched

to new contracts. This approach has been presented to, discussed by, and approved in concept by the Finance and Legal Subcommittee of the Purveyor Committee.

This document describes the calculation of rates for 1982 Contract customers. It is organized to follow the steps involved in the rate study starting with assumptions, working through O&M and asset allocation, incorporating Purveyor Balance Account adjustments, and designing rates.

B. Overall Assumptions

1. Inflation is assumed to be 2.5% through the period of the rate study.
2. Seattle's average cost of debt is assumed at 4.5%, which is the rate calculated in the 2004 Purveyor Statements.
3. There are no new "New Expansion Facility" (NEF or "New Water Facility") projects over the period of the rate study. The ongoing NEF projects are Regional Water Conservation and Tolt Pipeline 2, Stages II & III - West of the Tolt Pipeline.
4. A "true up" is performed each year to compare the prior year's actual revenues and actual costs of service. A running balance of the excess or deficit in revenues is maintained in the "Purveyor Balance Accounts" for both Old and New water and presented in the yearly Purveyor Statements. This rate study sets rates to amortize the projected 2005 year-end balances over the 2006-2008 timeframe.
5. Flow Allocators identified in the 2004 Purveyor Balance Account Statements were used for this rate study.

C. Operations and Maintenance Costs

Operations and Maintenance (O&M) costs are developed for 1982 contract holders by applying allocators to individual O&M activities, such as Watershed Road Maintenance. For this rate study, 2005 O&M activity costs are taken from the 2005 adopted budget, and 2006 O&M costs are taken from the 2006 budget proposal. Costs for 2007 and 2008 are based on 2006 amounts indexed for inflation, plus known additions. These costs are allocated based on 2004 actual flows. For 2009-2011, the 2008 allocated cost was increased yearly by the assumed rate of inflation.

1. Old Water

Significant increases in O&M are expected in 2007 and 2008. The main driver is training and maintenance on the water security system, but there are also significant increases in Field Operations relating to water supply and treatment.

2. New Water

There are no significant changes expected for New Water O&M.

D. Old Water Capital Costs

Yearly asset costs for Old Water are calculated on the “utility basis.” Under the utility basis, the annual cost of an asset is depreciation plus the Net Book Value of the asset multiplied by a return on assets. This calculation is much like a home mortgage. The utility basis cost for each asset is then allocated to Purveyors using flows such as Peak Season flow through the asset. The flow allocators used were those identified in the 2004 Purveyor Statements. Administratively, there are three categories of assets to be included in the rate study cost allocation: existing assets, future assets (in-construction or planned), and special assets.

1. Existing Assets

The cost basis for existing assets was the asset schedule used in preparation of the 2004 Purveyor Balance Account Statements. Depreciation and Net Book Value were calculated through 2011 and allocated using the 2004 allocators.

2. In-Construction and Future Assets

Identification of future assets came from the 6-year Capital Improvement Plan for the Water Fund and the Water Fund portion of the Technology 6-year Capital Improvement Plan. These plans list budgeted spending levels for each project for 2005 and beyond. The SPU financial system provided life-to-date spending on these projects through year-end 2004.

For each project, an in-service year was determined – typically the last year of spending in the CIP budget. Exceptions were annual programs (such as Transmission Pipeline Rehabilitation), which are capitalized at the end of each year. Interest costs associated with assets in construction (“AFUDC”) were calculated for assets through June of the year they are to be placed in service, and depreciation was calculated for each project starting with the year after the asset is placed in service. All of these assumptions are consistent with SPU’s actual accounting practices.

Assets were assigned cost allocators using the same methodology as existing assets. In a few cases, the CIP item consists of smaller projects (such as the Cathodic Protection Program), some included in the Purveyor rate base and some not. These assets were categorized where the majority of the costs will be incurred. When the projects are executed, they will be disaggregated for tracking and allocating actual costs.

3. Special Assets

There are several assets that receive special treatment for rate making/cost allocation purposes.

1. **Gains on the sale of land originally purchased for exchange within the Cedar River Watershed**
These gains are invested in the Habitat Conservation Plan assets and amortized over the life of the HCP. This asset appears on the existing asset schedule, and reduces the annual cost of service.
2. **Interest paid during construction on the Tolt Filtration Plant**
Wholesale customers agreed to pay a portion of interest costs during construction of the Tolt Filtration Plant. These payments reduce the rate-based cost of the Tolt Filtration Plant now that construction is complete. This reduction appears on the existing asset schedule.
3. **Interest paid during construction on the Cedar Treatment Plant**
Wholesale customers agreed to pay a portion of the interest costs for the Cedar Treatment Plant (CTP) during construction. These payments reduce the rate-based cost of the Cedar Treatment Plant now that construction is complete. This reduction appears on the existing asset schedule.

4. Tolt Pipeline Loss Amortization

In accordance with the First Amendment to the 1982 Contract, the Tolt Pipeline Loss shall continue to be included in the rate base. This amount appears as a separate line item in the Cost Allocation Summary.

5. Return on working capital – Old Water

In accordance with the 1982 Contract and First Amendment to the Contract, Purveyors pay a rate of return on Old Water working capital, which is defined as one eighth of annual operation and maintenance expenses allocated to Purveyors. The amount charged to the Purveyors annually is the Old Water working capital (as defined above) times the net difference of the rate of return provided under the contract and the 90-day Treasury bill rate. This net amount is assumed to be 1% through the period of the rate study.

E. New Water Capital Costs

Purveyors pay a share of the actual cash costs of New Water Facilities, including debt service and revenue contributions to the capital program.

1. Existing Assets

The Purveyor percentage share of the debt service of each outstanding bond issue is calculated in the Purveyor Statements. The percentage shares from the 2004 Purveyor Statements were applied to existing bond debt service payments to be made in 2006 through 2008.

2. In-Construction Assets

Purveyors were charged a share of debt service on current and future bond issues that will be used to finance New Water projects. Purveyors were also charged for revenue contributions to New Water Projects at the average cash contribution to CIP spending projected for each year: 21% in 2005, 20% in 2006, 18% in 2007, and 25% in 2008.

3. Special Assets

There is one New Water item that receives special treatment for rate making and cost allocation purposes. In accordance with the 1982 Contract and First Amendment to the Contract, Purveyors contribute to New Water working capital, which is currently set at \$16,000. Because this amount was previously funded by Purveyors, they now earn interest on the balance. The interest rate is assumed to remain at 3.7% through the period of the rate study.

F. Amortization of Purveyor Balance Accounts

This rate study takes into account the actual Purveyor Balances from the 2004 Purveyor Statements and the current forecast for the 2005 True Up. Rates are set to amortize these balances plus interest over the period 2006-2008.

The Old Water Purveyor Balance Account balance in 2004 includes non-rate-based revenues that were shared with Purveyors. The Purveyor's portion of the 2004 Bonneville Power Administration transmission line easement revenues and timber harvesting revenues totaled \$451,171. The 2005 balance projected in this rate study (\$4.4 million) helps to minimize Old Water rate increases.

For New Water, the \$4.5 million surplus in 2004 is projected to decline to less than \$300k by the end of 2005 due to wet cold weather. In the previous rate study, this balance was expected to hold New Water rates down through the end of 2006. However, New Water rates will revert back to undiscounted levels in 2006.

G. Cost Allocation Summary

	2004 Actual	2005 Projected	2006 Projected	2007 Projected	2008 Projected	2009 Projected	2010 Projected	2011 Projected
OLD WATER REVENUE REQUIREMENT								
Purveyor Rate Base	284,759,622	282,962,921	285,876,360	288,290,863	288,681,306	283,999,691	279,775,333	298,980,408
Rate of Return	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Original Cost of Plant	348,929,930	356,003,488	368,005,696	380,103,033	390,922,419	396,988,904	403,961,516	434,414,152
Less: Accumulated Depreciation	(65,897,651)	(74,991,254)	(84,195,254)	(94,154,469)	(104,602,027)	(115,409,149)	(126,666,618)	(137,976,189)
Plus: Working Capital Allowance	1,727,343	1,950,687	2,065,917	2,342,298	2,360,913	2,419,936	2,480,435	2,542,446
Old Water Revenue Requirement	37,810,373	37,414,449	37,243,527	39,258,215	41,550,367	43,151,251	43,953,250	45,363,374
Operating Expenses	13,818,743	15,605,500	16,527,340	18,738,386	18,887,307	19,359,490	19,843,477	20,339,564
Return on Plant	12,736,453	12,645,551	12,771,470	12,867,685	12,884,418	12,671,089	12,478,270	13,339,708
Return on Working Capital	53,548	15,605	16,527	18,738	18,887	19,359	19,843	20,340
Depreciation and Amortization	7,313,255	9,093,603	9,264,000	10,079,215	10,627,558	11,047,122	11,557,469	11,609,571
Other: TPL Loss/envirom liab/expensed CIP	337,324	54,190	54,190	54,190	54,190	54,190	54,190	54,190
Retro adj	2,512,613							
PBA Amortization			(1,390,000)	(2,500,000)	(921,994)			
Interest on Cedar Treatment Plant	1,038,438							
Old Water Revenue @ '05 rates	40,115,531	36,104,002	37,237,702	36,999,173	36,879,908	36,879,908	36,999,173	37,118,438
at Planned Rates		36,104,002	37,243,527	39,258,215	41,550,367	43,151,251	43,953,250	45,363,374
Annual Revenue Surplus (Deficiency)	2,305,158	(1,310,447)	-	-	-	-	-	-
Required Rate Increase (over previous year)			0.02%	6.09%	6.18%	3.85%	1.53%	2.88%
NEW WATER REVENUE REQUIREMENT								
Operating Expenses	28,556	17,333	20,782	191,537	195,368	200,252	205,259	210,390
NEF Financed by:								
Debt	5,687,212	5,013,479	4,780,127	4,234,180	4,425,678	4,495,310	4,638,158	4,813,006
Operating Revenue	308,697	693,000	390,079	312,994	677,184	575,660	826,045	-
Interest on \$16,000 Working Capital	(496)	(592)	(592)	(592)	(592)	(592)	(592)	(592)
PBA Adjustment			(304,877)	0	0			
Revenue Sources	6,456,332	1,296,158	4,885,520	4,738,120	5,297,638	5,270,631	5,668,869	5,022,804
Revenue at Planned Rates	6,456,332	1,296,158	4,885,520	4,738,120	5,297,638	5,270,631	5,668,869	5,022,804
Demand Charges	0	0	0	0	0	0	0	0
Growth charges @ current ('05) rates	6,456,332	1,296,158	2,413,428	2,351,961	2,321,228	2,321,228	2,351,961	2,382,695
Revenue Surplus (Deficiency)	432,364	(4,427,063)	-	-	-	-	-	-
Required Rate Increase (Decrease)		0.0%	102%	0%	13%	-1%	6%	-13%
TRUE UP ADJUSTMENT (BALANCE ACCOUNTS)								
Old water								
Net Excess (Deficit)	5,490,771	4,180,324	3,037,409	736,642	(39,703)	0	0	0
Interest		247,085	199,233	145,649	39,703	0	0	0
New Water								
Net Excess (Deficit)	\$4,515,608	88,546	(13,129)	0	0	0	0	0
Interest		203,202	13,129	0	0	0	0	0
Total Revenue from Purveyors at '05 rates	46,571,864	37,400,160	39,651,130	39,351,134	39,201,136	39,201,136	39,351,134	39,501,133
Total Purveyor Revenues at Planned Rates:	46,571,864	37,400,160	42,129,047	43,996,335	46,848,005	48,421,882	49,622,119	50,386,178
Increase in Revenue Requirement:			12.6%	4.4%	6.5%	3.4%	2.5%	1.5%

H. Rate Making

The essence of rate making is to determine the unit price by dividing the revenues to be collected by the units of service. Items such as the seasonal rate differential make this a bit more complicated and are discussed below.

1. Treatment of Rate Rounding

Water rates are set in whole penny amounts and are seasonally differentiated (ie. there is a peak rate and an off-peak rate). Seasonal rate rounding was selected to generate revenues that were closest to the annual revenue requirement.

2. Seasonal Rate Differential

The existing seasonal rate differential (i.e., the ratio of the peak rate to the off-peak rate) of 1.52 has been maintained for 2006 - 2008.

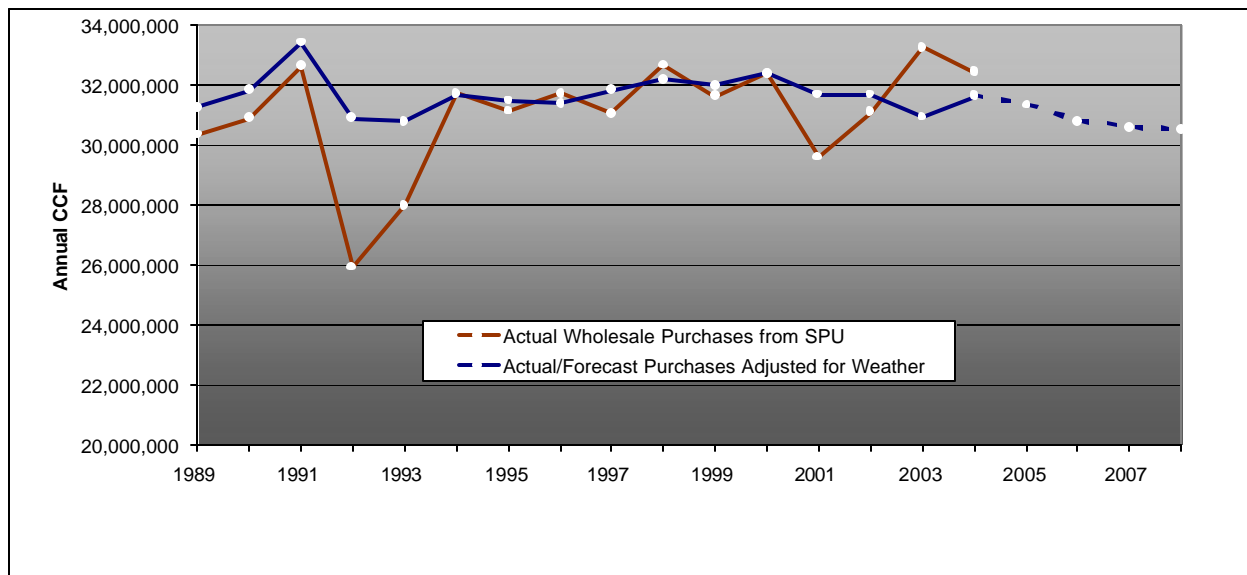
3. Sales Volumes

Since the revenue generated by rates is dependent on the amount of water sold, the forecast of demand has a large impact on rates. The forecast of demand used in this rate study is shown in the table, below:

	2005	2006	2007	2008
Total Purveyors				
Peak CCF	12,889,896	13,779,920	13,690,440	13,645,700
Off-Pk CCF	17,211,262	17,020,080	16,909,560	16,854,300
Total Base CCF	30,101,158	30,800,000	30,600,000	30,500,000
New Water CCF	3,240,396	6,033,571	5,879,903	5,803,069

The overall forecast of wholesale demand from SPU is a slight decline in consumption falling approximately 0.6% per year in 2006 (from the original 2005 forecast) and 2007 and 0.3% in 2008. This appears in the context of increasing wholesale consumption between 2001 and 2003 and relatively high consumption in 2004. Evaluation of demand in 2003 and 2004 indicates a pronounced seasonal effect which was the result of consistently warm and exceptionally dry summer weather in those years. Overall, the trend in baseline consumption remains downward sloping. The graph below indicates wholesale water purchases from SPU since 1989.

Wholesale Water Purchases from SPU: 1989-2008



Between 1994 and 2000, annual wholesale water demand was relatively flat at around 32 million ccf, fluctuating up and down in response to summer weather. Voluntary curtailment in 2001 combined with a cold wet summer and declining employment caused wholesale purchases to plummet. Demand recovered somewhat in 2002 and surged to 33.3 million ccf in 2003 and 32.5 million ccf in 2004. However, wholesale demand adjusted for summer weather displays a different pattern – gradually rising through 2000 and then declining steadily after that.

The 1% Conservation Program is expected to continue offsetting the impact of population and employment growth on wholesale water demand while more than offsetting the effects of growth within Seattle. Total wholesale purchases from SPU are now projected to be between 30.5 and 31.0 million ccf annually for 2006 through 2008. Using the short term demand forecast model for the direct service area, Seattle retail demand is forecast to decline from 28.8 million ccf in 2005 to 28.1 million ccf in 2006, 27.5 million ccf in 2007 and 27.1 million ccf in 2008.

So far, the forecasts for 2005 have performed relatively well compared to actual consumption although purveyor consumption has been below forecast. While actual total consumption in the first half of the year was below forecast by 2.5%, this appears to be at least partly due to a wet and cool spring and early summer. A comparison of forecast to actual over the first 4 months of the year is a better indicator of forecast performance. On the wholesale side, the percentage difference between actual and forecast consumption for January through April was -3.3%. Actual retail demand through April was higher than forecast but only by 0.7%. The data for this period have been incorporated into the forecast for 2006 through 2008.

Appendix B: New Wholesale Contract Rate Study

Seattle Public Utilities 2005-2006 Wholesale Water Rate Study Full and Partial Requirements Contracts

A. Summary

Seattle proposes to adjust wholesale water rates for the May 16, 2006 – December 31, 2008 period as shown below. For the period January 1, 2006 – May 15, 2006, the previously adopted 2006 off peak rate will be in effect.

Rates per CCF	2005		2006			2007		2008	
	Off-Peak	Peak	Off-Peak 1/1 -5/15	Peak	Off-Peak 9/16-12/31	Off-Peak	Peak	Off-Peak	Peak
System Baseline Rates	\$1.08	\$1.61	\$1.14	\$1.69	\$1.14	\$1.15	\$1.71	\$1.16	\$1.72
Change from Prior Year:			5.7 %	5.3 %	5.7 %	0.9 %	0.9 %	0.5 %	0.5 %
Transition Discount:	-\$0.07	-\$0.08	-\$0.07	-\$0.12	-\$0.12	-\$0.12	-\$0.12	-\$0.12	-\$0.12
Adjusted Wholesale Rate:	\$1.01	\$1.53	\$1.07	\$1.57	\$1.02	\$1.03	\$1.59	\$1.04	\$1.60
Change from Prior Year:			5.9 %	2.6 %	1.0 %	1.0 %	1.3 %	1.0 %	0.6 %
Interim Growth Charge:	\$0.60	\$0.60	\$0.60	\$0.60	\$0.60	\$0.60	\$0.60	\$0.60	\$0.60
Sub-regional Surcharge Rates									
Southwest Sub-region:	\$0.01	\$0.01	\$0.02	\$0.04	\$0.04	\$0.05	\$0.05	\$0.06	\$0.06
East Sub-region, Segment 3:	\$0.04	\$0.04	\$0.04	\$0.08	\$0.08	\$0.09	\$0.09	\$0.10	\$0.10
East Sub-region, Segment 4:	\$0.05	\$0.05	\$0.05	\$0.09	\$0.09	\$0.11	\$0.11	\$0.12	\$0.12
ERU Fee (\$/ERU):	\$713	\$713	\$713	\$713	\$713	\$713	\$713	\$713	\$713

Note - Rate Components may not sum to totals due to rounding. The Total Wholesale Rate is rounded to whole cents.

Since the last rate study in 2004, the customer group covered under the New Contract cost allocation system has expanded. One customer (Woodinville) switched to the new Full Requirements Contract effective January 1, 2005 and one customer (Northshore) switched to a Fixed Block contract effective January 1, 2005.

The adjusted wholesale rates above include a discount funded by the Interim Growth Charge. Because Woodinville has proportionally more new water than customers who were under the contract during the last rate study, the amount of the discount has increased.

The rates are also affected by the CWA and Northshore Block contracts. As described in more detail later, the Block form of the contract is allocated costs based on system capacity rather than actual usage. Also, CWA is not allocated any New Supply or New Transmission costs (instead, any water used over the CWA block volume is subject to penalty fees). Northshore has a somewhat different arrangement in that they pay for conservation costs through the “Conservation Cost Pool” rather than the New Supply and Facilities Charge Cost Pools.

This document describes the calculation of rates for Full and Partial Requirements customers. It is organized to follow the steps involved in the rate study starting with assumptions, working through O&M and asset allocation, incorporating true up adjustments, and designing rates.

This rate study also develops rates for the Southwest and East sub-regions. Wholesale customers in the SW sub-region include Highline, Water District 20, Water District 125, and Water District 45. Seattle, Mercer Island, and Bellevue (through Cascade) are members of the East sub-region.

B. Overall Assumptions

1. Inflation is assumed to be 2.5% through the period of the rate study.
2. No customers will switch contract types in 2006, 2007, or 2008.
3. Seattle's average cost of debt is assumed at 4.5%, which is the rate calculated in the 2004 Purveyor Statements.
4. No costs have been assigned to the New Transmission cost pool because no new transmission infrastructure has been constructed since the implementation of the new contract.
5. A true up is performed each year to compare the prior year's actual revenues and actual costs of service. A running balance of the excess or deficit in revenues is maintained. This rate study sets rates to amortize the projected 2005 year-end true-up balance over the 2006-2008 rate period.

C. Total Regional O&M Costs

Yearly operations costs for each cost pool (e.g. Existing Supply) are calculated by applying an index to a base amount. The index is developed from the cost of certain O&M activities as identified in the contract. The original base amount for 2001 was also identified in the contract.

The starting point for this rate study was the 2004 base and index amounts developed during the 2004 true up. Activity level O&M budget projections were used to develop the indexes for 2005-2006, and inflation plus known adders were used for 2007-2011.

Consistent with the contract, Cedar Treatment Plant O&M costs are directly added to the O&M base until the year following the first full year of operation, at which point they are included in the index. This brings the Cedar Treatment Plant operations costs into cost allocations without increasing regional overhead costs. The table below reflects this treatment: in 2005, which is the first full year of operation, Cedar Treatment Plant O&M is still included as an adder, and then in 2006 the cost moves in to the Existing Supply base cost and index.

O&M Cost Summary	2005	2006	2007	2008
Existing Supply				
Prior Year Base	20,007,185	24,754,442	24,873,461	28,947,950
Index	1.112	1.005	1.164	1.003
Current Year Operations Cost Base	22,245,152	24,873,461	28,947,950	29,023,139
Adder for Cedar Treatment Plant	<u>2,509,290</u>			
Total Current Year Cost	24,754,442	24,873,461	28,947,950	29,023,139
Existing Transmission				
Prior Year Base	7,256,866	7,317,223	7,798,613	7,993,578
Index	1.008	1.066	1.025	1.025
Current Year Operations Cost Base	7,317,223	7,798,613	7,993,578	8,193,417
New Supply				
Prior Year Base	1,157,065	1,211,581	1,223,438	1,254,024
Index	1.047	1.010	1.025	1.025
Current Year Operations Cost Base	1,211,581	1,223,438	1,254,024	1,285,374

D. Total Regional Capital Costs

Yearly capital costs for each cost pool (e.g. Existing Supply) are calculated on the utility basis for assets assigned to that cost pool. Under the utility basis, the annual cost of an asset is depreciation plus the Net Book Value of the asset multiplied by a return on assets. This calculation is much like a home mortgage. The assets to be included in each cost pool are identified in the contract. Administratively, there are three categories of assets to be included in the rate study cost allocation: existing assets, future assets (in-construction or planned), and special assets.

1. Existing Assets

The basis for existing assets was the asset schedule used in preparation of the 2004 Wholesale Statements. Depreciation and Net Book Value were calculated through 2011 and allocated to the appropriate cost pool.

2. In-Construction and Future Assets

Identification of future assets came from the 6-year Capital Improvement Plan for the Water Fund and the Water Fund portion of the Technology 6-year Capital Improvement Plan. These plans also list budgeted spending levels for 2005 and beyond. The SPU financial system provided life-to-date spending on these projects through year-end 2004.

For each project, an in-service year was determined – typically the last year of spending in the CIP budget. Exceptions were annual programs, such as Transmission Pipeline Rehabilitation, that are capitalized at the end of each year. Interest costs associated with assets in construction (“AFUDC”) were calculated for assets through June of the year they are to be placed in service, and depreciation was calculated for each project starting with the year after the asset is placed in service. All of these assumptions are consistent with SPU’s actual accounting practices.

Assets were assigned to cost pools per the lists in the New Contract Exhibits. In a few cases, the CIP item consists of smaller projects (such as the Cathodic Protection Program), some included in the wholesale

rate base and some not. These assets were categorized where the majority of the costs will be incurred. When the projects are executed, they will be disaggregated for tracking and allocating actual costs.

3. Special Assets

There are several assets that receive special treatment for rate making/cost allocation purposes.

1. Gains on the sale of land originally purchased for exchange within the Cedar River Watershed.

These gains are invested in the Habitat Conservation Plan (HCP) assets and amortized over the life of the HCP. This asset appears on the existing asset schedule.

2. Interest paid during construction on the Tolt Filtration Plant.

Wholesale customers agreed to pay a portion of interest costs during construction of the Tolt Filtration Plant. These payments reduce the rate-based cost of the Tolt Filtration Plant now that construction is complete. This appears as a contributed asset on the existing asset schedule.

3. Interest paid during construction on the Cedar Treatment Plant.

Wholesale customers agreed to pay a portion of the interest costs for the Cedar Treatment Plant during construction. These payments reduce the rate-based cost of the Cedar Treatment Plant now that construction is complete. This appears as a contributed asset on the existing asset schedule.

E. Allocation of Total Regional Costs

The work above determines total regional costs, which are then allocated to wholesale customers. For cost allocation purposes, Seattle's retail service area is considered a wholesale customer of the water system.

Step 1 - Allocation to new contract type (Full, Partial, and Block)

Because only a portion of demand is under new contracts (full and partial requirements, block), new contract customers bear only a portion of the regional costs developed above. This first allocation is done by the projected annual flows for Full and Partial contract holders plus the CWA and Northshore blocks as compared to total system flows. The block volume is used rather than projected consumption because CWA and Northshore are paying for a portion of system capacity. Approximately 96% of demand (including Seattle) is under the new contract, so new contract customers support approximately 96% of regional costs.

Step 2 - Allocation to Block Customers

Next, the block contract portions are removed from the new contract amount identified above.

Cascade Water Alliance (CWA) has a declining block contract with Seattle rather than full or partial requirements contract. CWA shares in the Regional Existing Supply and Existing Transmission cost pools but not New Supply or New Transmission. The allocation to Cascade is done according to the CWA contract; CWA pays 18.1% of the regional existing supply and transmission costs. This allocation is 102% times the CWA block volume (30.3 MGD) divided by the system firm yield (171 MGD).

Northshore has a fixed block contract with Seattle. Northshore shares in the Regional Existing Supply and Existing Transmission cost pools, and the conservation related portions of the New Supply and Facilities Charge cost pools. The allocation of Existing Supply and Existing Transmission is 5.1%, which is 102% of Northshore's block volume (8.55 MGD) divided by the system firm yield (171 MGD). Northshore's allocation of conservation is 6.2%, which is 102% of Northshore's block volume (8.55 MGD) divided by the system firm yield minus the CWA block (171 MGD - 30.3 MGD). CWA's block is

not included in conservation calculations since CWA does not participate in SPU's regional conservation programs.

Step 3 - Remainder to Full and Partial Requirements Contract Holders

Full and Partial Requirements customers pay the remaining costs in the new contract cost pool. The results of this allocation of regional costs are shown below:

	2005	2006	2007	2008
Total Regional Cost	\$ 83,070,660	\$ 82,615,239	\$ 86,345,351	\$ 86,678,635
Percent Demand under New Contract	96.6%	96.3%	96.3%	96.3%
System Cost under New Contract	\$ 80,273,451	\$ 79,548,586	\$ 83,130,059	\$ 83,438,189
Cascade Portion	\$ 14,794,951	\$ 14,710,497	\$ 15,379,138	\$ 15,433,708
Northshore Portion	\$ 4,345,155	\$ 4,350,822	\$ 4,573,325	\$ 4,625,519
Remainder to Full and Partial Contract holders, incl. Seattle	\$ 61,133,345	\$ 60,487,267	\$ 63,177,596	\$ 63,378,961

Because the allocation to block customers is by block size rather than by projected flows, there is an effect on the remaining costs to be shared among Full and Partial Contract holders. This effect has to do with how the system excess capacity is shared. Because CWA is using almost all of their block, they are paying for less "excess capacity" than they would be as a Full and Partial Requirements customer, and the amount of excess remaining to Full and Partial Requirements customers is higher. Conversely, Northshore currently has a higher excess rate than the system average, which lowers the amount remaining to Full and Partial Requirements customers.

F. True Up Adjustments

Although cost allocation is done jointly for Full and Partial Requirements Customers, CWA, and Northshore, the true ups and resulting excesses/deficiencies for the three groups will be maintained separately. As such, Seattle (rather than the other wholesale customers) funds the Cascade and Northshore excesses/deficiencies.

This rate study takes into account the actual Full and Partial Requirements Contracts true up balance from the 2004 true up and the current forecast for the 2005 true up. Rates are set to amortize these balances plus interest over the period 2006-2008. The true up balance in 2004 includes significant non-rate-based revenues that were shared with wholesale customers. The 2004 portion of the Bonneville Power Administration transmission line easement was \$1.2 million, and an additional \$200k was received from timber harvesting. The Full and Partial Requirements customer (including Seattle) portion of these revenues was \$1.136 million.

For the two customers who switched contract types effective 1/1/2005, there will be separate transactions to "settle up" their portion of the Purveyor Balance Account from the Old Contract. This settlement is outside of the rate-making process for the new contract because the settlement only applies to these two customers. Each of the customers who switched prior to 1/1/2005 already has already settled its PBA balance with Seattle.

G. Cost Allocation Summary

The following schedule presents the summary of rate-based (non Facilities Charge based) contract costs for 2004-2011:

	2004 Actual	2005 Projected	2006 Projected	2007 Projected	2008 Projected	2009 Projected	2010 Projected	2011 Projected
Existing Supply Cost Pool								
Operations	20,089,652	24,754,442	24,873,461	28,947,950	29,023,139	29,748,717	30,492,435	31,254,746
Operations Increments (Cedar Treatment)	792,912							
Asset Cost Recovery	30,027,679	32,286,292	31,045,591	30,617,930	30,217,072	30,285,173	30,968,109	35,176,135
Cedar Treatment Interest During Const.	3,144,700							
Total:	54,054,943	57,040,734	55,919,052	59,565,880	59,240,211	60,033,891	61,460,544	66,430,881
Operations	1,157,065	1,211,581	1,223,438	1,254,024	1,285,374	1,317,509	1,350,446	1,384,208
Asset Cost Recovery		-	-	-	-	-	-	-
Total:	1,157,065	1,211,581	1,223,438	1,254,024	1,285,374	1,317,509	1,350,446	1,384,208
Operations	7,256,866	7,317,223	7,798,613	7,993,578	8,193,417	8,398,253	8,608,209	8,823,414
Asset Cost Recovery	17,731,121	17,501,121	17,674,137	17,531,869	17,959,633	17,981,856	17,994,652	17,900,599
Total:	24,987,987	24,818,344	25,472,750	25,525,447	26,153,050	26,380,109	26,602,861	26,724,014
New Transmission Cost Pool								
Operations	-	-	-	-	-	-	-	-
Asset Cost Recovery	-	-	-	-	-	-	-	-
Total:	-	-	-	-	-	-	-	-
Grand Total Regional Cost:	80,199,995	83,070,660	82,615,239	86,345,351	86,678,635	87,731,508	89,413,851	94,539,102
Flow Under New Contract:	89.1%	96.6%	96.3%	96.3%	96.3%	96.2%	96.2%	96.2%
New Contract Cost:	71,606,639	80,273,451	79,548,586	83,130,059	83,438,189	84,436,790	86,037,780	90,952,397
Less Cascade & Northshore Costs:	14,285,970	19,140,106	19,061,319	19,952,463	20,059,228	20,335,571	20,761,889	21,966,390
Full and Partial Requirements Cost:	57,320,669	61,133,345	60,487,267	63,177,596	63,378,961	64,101,220	65,275,890	68,986,007
True Up Adjustment				(2,460,000)	(3,001,665)			
Annual Revenue Requirement:	57,320,669	61,133,345	60,487,267	60,717,596	60,377,297	64,101,220	65,275,890	68,986,007
True Up Adjustments								
Net Excess (Deficiency):	10,913,843	4,391,921	4,883,044	2,642,781	(129,258)	0	0	0
Interest:		491,123	219,737	229,625	129,258	0	0	0

H. Rate Making

The essence of rate making is to determine the unit price by dividing the revenues to be collected by the units of service. Items such as the seasonal rate differential make this a bit more complicated and are discussed below.

1. Treatment of Rate Rounding

Water rates are set in whole penny amounts and are seasonally differentiated (i.e. there is a peak rate and an off-peak rate). For purposes of this rate study, only the aggregate rate charged to a wholesale customer was constrained to the nearest cent. New contract customers technically have separate rates for Existing Supply, Existing Transmission, New Supply, and New Transmission, but only the sum of these components appears on customer bills. It is this total rate that is rounded to the nearest cent. Seasonal rate rounding was selected to generate revenues that were closest to the annual revenue requirement.

2. Demand Volumes

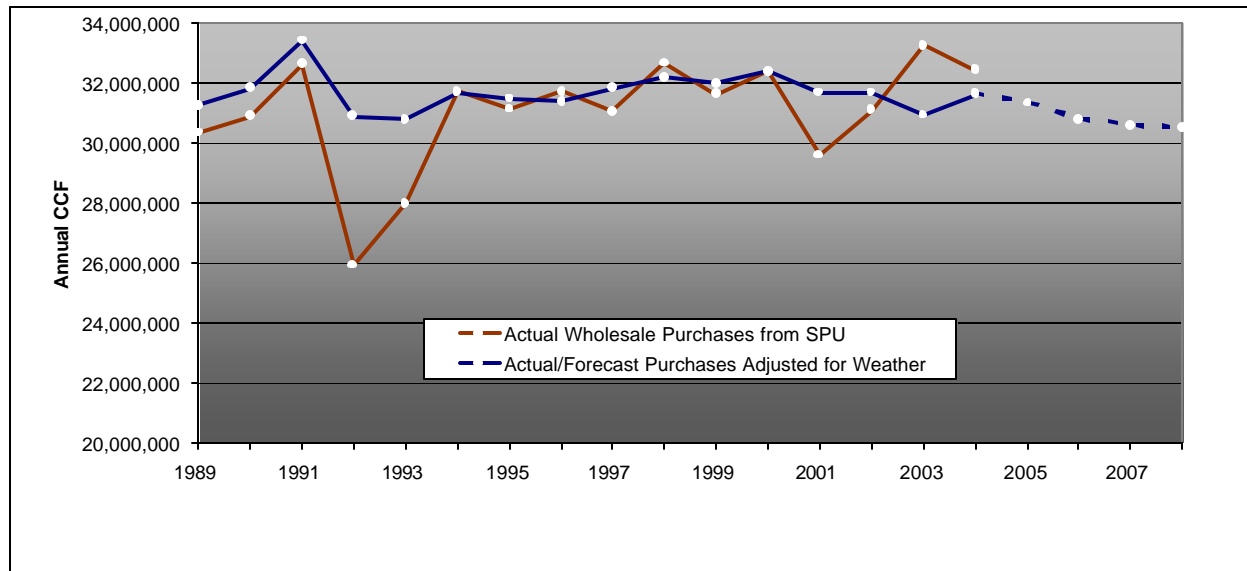
Since the revenue generated by rates is dependent on the amount of water sold, the forecast of demand has a large impact on rates. The forecast of demand used in this rate study is shown in the table, below:

	2005	2006	2007	2008
Old Contracts				
Peak CCF	900,843	1,086,188	1,079,134	1,075,608
Off-Pk CCF	1,305,115	1,367,448	1,358,569	1,354,129
Total Base CCF	2,205,958	2,453,636	2,437,703	2,429,737
New Contracts				
Peak CCF	5,428,337	5,833,262	5,795,384	5,776,444
Off-Pk CCF	7,363,496	7,395,699	7,347,676	7,323,664
Total Base CCF	12,791,833	13,228,961	13,143,060	13,100,108
CWA				
Annual Block CCF	14,785,428	14,785,428	14,785,428	14,785,428
Northshore				
Annual Block CCF	4,172,126	4,172,126	4,172,126	4,172,126
Seattle				
Peak Retail CCF	10,938,000	10,914,000	10,601,000	10,435,000
Off-Pk Retail CCF	17,216,000	17,152,000	16,921,000	16,652,000
Total Retail CCF	28,154,000	28,066,000	27,522,000	27,087,000
Non-revenue CCF	N/A	3,365,661	3,380,541	3,391,241
Seattle Wholesale CCF	N/A	31,431,661	30,902,541	30,478,241

The overall forecast of wholesale demand from SPU is a slight decline in consumption falling approximately 0.6% per year in 2006 and 2007 and 0.3% in 2008. This appears in the context of increasing wholesale consumption between 2001 and 2003 and relatively high consumption in 2004. Evaluation of demand in 2003 and 2004 indicate a pronounced seasonal effect which was the result of consistently warm and exceptionally dry summer weather in those years. Overall, the trend in baseline consumption remains downward sloping. The graph below indicates wholesale water purchases from SPU since 1989.

Between 1994 and 2000, annual wholesale water demand was relatively flat at around 32 million ccf, fluctuating up and down in response to summer weather. Voluntary curtailment in 2001 combined with a cold wet summer and declining employment caused wholesale purchases to plummet. Demand recovered somewhat in 2002 and surged to 33.3 million ccf in 2003 and 32.5 million ccf in 2004. However, wholesale demand adjusted for summer weather displays a different pattern – gradually rising through 2000 and then declining steadily after that.

Wholesale Water Purchases from SPU: 1989-2008



The 1% Conservation Program is expected to continue offsetting the impact of population and employment growth on wholesale water demand while more than offsetting the effects of growth within Seattle. Total wholesale purchases from SPU are now projected to be between 30.5 and 31.0 million ccf annually for 2006 through 2008. Using the short term demand forecast model for the direct service area, Seattle retail demand is forecast to decline from 28.8 million ccf in 2005 to 28.1 million ccf in 2006, 27.5 million ccf in 2007 and 27.1 million ccf in 2008.

So far, the forecasts for 2005 have performed relatively well compared to actual consumption although purveyor consumption has been below forecast. While actual total consumption in the first half of the year was below forecast by 2.5%, this appears to be at least partly due to a wet and cool spring and early summer. A comparison of forecast to actual over the first 4 months of the year is a better indicator of forecast performance. On the wholesale side, the percentage difference between actual and forecast consumption for January through April was -3.3%. Actual retail demand through April was higher than forecast but only by 0.7%. The data for this period has been incorporated into the forecast for 2006 through 2008.

Demand forecasts for sub-groupings of Seattle's wholesale customers (old contract, new contract, CWA) are based on their proportional shares of total wholesale demand over the period 1994-2004.

3. Transition Discount

Until 2012, wholesale customers pay a \$0.60 per CCF "Interim Growth Surcharge" on consumption above 1982 levels (ie. the "Old Water Allowance"). The revenue from this surcharge discounts the base rate charged to wholesale customers (but not Seattle) by not more than \$0.16 per ccf. This rate study found that interim growth surcharge revenues were sufficient to fund the discount at about \$0.12 per ccf in 2006 through 2008 (unrounded values are used in the calculation to give wholesale customers the benefit of every fraction of a cent of interim growth charge revenue). This discount applies to both peak and off peak rates. Seattle does not receive this discount to its wholesale rates.

The proceeds of the \$0.60 interim growth surcharge are used to fund the discount. The discount will increase when "New Water" customers join the contract (higher surcharge revenues), and decrease when

“Old Water” customers join (broader base to spread the surcharge revenues). The customers that joined since the previous rate study have a higher ratio of new water to old water than customers who joined the new contract in through 2004, so the amount of the discount has increased.

Because the post 5/16/2006 discount (\$0.12 per ccf) is higher than the pre 5/16/2006 discount (0.07 per ccf), the effect is to decrease discounted rates even if the regional costs do not increase. The off-peak and peak system baseline rates (before discounts) are increasing 5.3% and 5.7%, respectively, from 2005. However, the effect of increasing the discounts is to lower the effective rate increase to 2.6% for peak and 1.0% for off peak.

4. Seasonal Rate Differential

Seattle chose to maintain the existing ratio of peak rate to off-peak rate of 1.52. The un-discounted base rates are set so that the seasonal rate differential of the discounted base rates would be about 1.52, taking into account accurately recovering the total revenue requirement.

I. Southwest Sub-Region

Calculating rates for the Southwest Sub-region uses data from the main rate study, but is done as a separate step. The Southwest Sub-region is comprised of six “Facilities” as defined in the contract. For each Facility, total O&M and utility basis capital costs are determined. Then, for each of the six facilities, the percent used by all wholesale customers (as opposed to Seattle) is determined, and that percent is applied to the O&M and asset cost for the corresponding facility. These are combined to form the Southwest Sub-region cost pool.

1. Capital Cost

During the main rate study, certain existing assets and future/planned assets were identified as Sub-regional. The utility basis cost was calculated using the same method as for the regional cost pools.

2. O&M

O&M cost tracking for sub-regions was done a little differently than for the regional cost pools. Location codes are pulled from the financial system, rather than using budgeted spending per activity code. For each Facility, the O&M costs from the 2004 true up were carried forward.

3. Setting Rates

The procedures above produced a total Sub-regional cost for all wholesale customers served by the sub-region, regardless of contract type. This total cost was divided by the total flow for all wholesale customers in the sub-region, regardless of the exact location of their wholesale meter, to produce a rate per ccf. During the true up stage, “as-if” revenues will be calculated for wholesale customers still under the old contract type.

The largest driver of the Southwest sub-region rate is the Des Moines Way pipeline project that was expensed in 2005 & 2006. This pipeline relocation project is no longer required due to a change in customer tap location.

Southwest Sub-Region Facilities	2005	2006	2007	2008	2009	2010	2011
585 Zone Facilities							
Operations Costs	10,539	10,539	10,539	10,539	10,539	10,539	10,539
Asset Recovery Costs	355,216	400,719	411,590	405,649	399,709	393,768	387,795
Total	365,755	411,258	422,129	416,188	410,248	404,307	398,334
Allocated at 21%	81,929	92,122	94,557	93,226	91,895	90,565	89,227
West Seattle Reservoir							
Operations Costs	47,739	47,739	47,739	47,739	47,739	47,739	47,739
Asset Recovery Costs	448,792	439,905	431,018	422,131	413,243	2,167,858	2,711,535
Total	496,531	487,644	478,757	469,870	460,982	2,215,597	2,759,274
Allocated at 6%	11,917	11,703	11,490	11,277	11,064	53,174	66,223
West Seattle Pipeline							
Operations Costs	2,232	2,232	2,232	2,232	2,232	2,232	2,232
Asset Recovery Costs	139,092	153,268	151,026	148,784	146,541	144,299	142,057
Total	141,324	155,500	153,258	151,016	148,773	146,531	144,289
Allocated at 26%	19,361	21,304	20,996	20,689	20,382	20,075	19,768
Des Moines Way Pipeline							
Operations Costs	101,106	1,535	1,535	1,535	1,535	1,535	1,535
Asset Recovery Costs	12,792	20,355	22,427	21,835	21,243	20,650	20,058
Total	113,899	21,890	23,963	23,370	22,778	22,186	21,593
Allocated at 100%	113,899	21,890	23,963	23,370	22,778	22,186	21,593
Military Road Feeder							
Operations Costs	0	0	0	0	0	0	0
Asset Recovery Costs	680	647	613	580	366	0	0
Total	680	647	613	580	366	0	0
Allocated at 100%	680	647	613	580	366	0	0
East Marginal Way Feeder							
Operations Costs	0	0	0	0	0	0	0
Asset Recovery Costs	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Allocated at 100%	0	0	0	0	0	0	0
Total Cost Allocated to SW Sub-region	227,786	147,666	151,619	149,142	146,485	186,000	196,810
True Up Balance Amortization		40,000	160,000	197,370			
Sub-regional Revenue Requirement	227,786	187,666	311,619	346,513	146,485	186,000	196,810
Rate Increase		287%	41%	12%	-58%	27%	5%
Southwest Sub-Regional Rates:	\$ 0.01	\$ 0.04	\$ 0.05	\$ 0.06	\$ 0.03	\$ 0.03	\$ 0.03

J. East Sub-Region

The East sub-region consists of four segments of the Mercer Island Pipeline, each serving different combinations of wholesale customers. Because the segments are in series (each segment feeds the next one) cost allocation is a sequential calculation based on flows.

1. Capital Cost and O&M

The utility basis cost of each segment of the existing pipeline was determined using length to divide the total cost. No CIP items were identified that affect the Mercer Island Pipeline. For each segment, the 2004 true up O&M costs were carried forward.

2. Setting Rates

Consistent with the contract, a rate was calculated for each segment of the pipeline and the rate will be applied to flow through wholesale meters on that segment. These rates and the revenues they generate will be tracked and trued up separately for each segment. As a result, Mercer Island, who has meters on two different segments, will experience two different Sub-regional surcharges on their monthly bills.

East Sub-Region Facilities	2005	2006	2007	2008	2009	2010	2011
Segment 1							
Utility Basis Cost of Segment 1	17,596	17,207	16,819	16,430	16,041	15,652	15,263
Allocated to meters on Segment 1 (Bellevue)	1,528	1,494	1,460	1,426	1,393	1,359	1,325
Allocated Downstream	16,068	15,713	15,358	15,003	14,648	14,293	13,938
Block payment for Segment 1	\$ 1,528	\$ 1,494	\$ 1,460	\$ 1,426	\$ 1,393	\$ 1,359	\$ 1,325
Segment 2							
Utility Basis Cost of Segment 2	24,818	24,270	23,721	23,173	22,625	22,076	21,528
Allocation from Segment 1	16,068	15,713	15,358	15,003	14,648	14,293	13,938
Total Cost of Segment 2	40,887	39,983	39,080	38,176	37,273	36,370	35,466
Allocated to meters on Segment 2 (Bellevue)	4,919	4,810	4,702	4,593	4,484	4,376	4,267
Allocated Downstream	35,967	35,173	34,378	33,583	32,789	31,994	31,199
Block payment for Segment 2	\$ 4,919	\$ 4,810	\$ 4,702	\$ 4,593	\$ 4,484	\$ 4,376	\$ 4,267
Segment 3							
Utility Basis Cost of Segment 3	32,900	32,173	31,446	30,719	29,992	29,265	28,538
Allocation from Segment 2	35,967	35,173	34,378	33,583	32,789	31,994	31,199
Total Cost of Segment 3	68,867	67,346	65,824	64,302	62,781	61,259	59,738
Allocated Downstream	61,179	59,827	58,475	57,124	55,772	54,420	53,068
Allocated to meters on Segment 3 (Seattle & Mercer Island)	7,688	7,518	7,349	7,179	7,009	6,839	6,669
Segment 3 True Up Balance Amortization		1,200	4,200	6,320			
\$/CCF for Segment 3	\$ 0.04	\$ 0.07	\$ 0.09	\$ 0.10	\$ 0.05	\$ 0.05	\$ 0.05
Segment 4							
Utility Basis Cost of Segment 4	17,424	17,039	16,654	16,269	15,884	15,499	15,114
Allocation from Segment 3	61,179	59,827	58,475	57,124	55,772	54,420	53,068
Total Cost of Segment 4	78,603	76,866	75,130	73,393	71,656	69,919	68,183
Allocated to meters on Segment 4 (Mercer Island)	78,603	76,866	75,130	73,393	71,656	69,919	68,183
Segment 4 True Up Balance Amortization		6,000	50,000	62,773			
\$/CCF for Segment 4	\$ 0.05	\$ 0.08	\$ 0.11	\$ 0.12	\$ 0.06	\$ 0.06	\$ 0.06

Notes: Bellevue is part of Cascade, so their "rate" is a block payment
Numbers may not sum due to rounding

K. ERU Fee

The current Facilities Charge rate of \$713/ERU became effective in early 2003. This charge recovers the cost of durable investments made as part of the 1% conservation plan. The rate will not be adjusted until a new supply facility is added.

Appendix C: Informational Tables

A. Wholesale Rate History									
Effective Date:	1/1/99	12/31/99	5/16/01	7/16/01	1/1/02	7/16/02	9/16/02	1/1/04	1/1/05
1982 Contract									
Commodity Rate (per ccf)									
Off-Peak	\$0.44	\$0.73	\$0.77	\$0.77	\$0.77	\$0.77	\$0.89	\$0.97	\$0.96
Peak	\$1.12	\$1.12	\$1.17	\$1.17	\$1.17	\$1.17	\$1.36	\$1.48	\$1.48
Growth Charge	\$0.50	\$0.46	\$0.63	\$0.63	\$0.68	\$0.68	\$0.77	\$0.82	\$0.40
Demand Charge									
(\$/1000 gals of deficient storage)	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00	\$22.00
Meter Charge (\$s/mtr/mo)									
1"	\$45.00	\$45.00	\$54.00	\$54.00	\$54.00	\$54.00	\$54.00	\$54.00	\$54.00
1 1/2"	\$50.00	\$50.00	\$60.00	\$60.00	\$60.00	\$60.00	\$60.00	\$60.00	\$60.00
2"	\$55.00	\$55.00	\$66.00	\$66.00	\$66.00	\$66.00	\$66.00	\$66.00	\$66.00
3"	\$65.00	\$65.00	\$78.00	\$78.00	\$78.00	\$78.00	\$78.00	\$78.00	\$78.00
4"	\$90.00	\$90.00	\$108.00	\$108.00	\$108.00	\$108.00	\$108.00	\$108.00	\$108.00
6"	\$160.00	\$160.00	\$192.00	\$192.00	\$192.00	\$192.00	\$192.00	\$192.00	\$192.00
8"	\$250.00	\$250.00	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00	\$300.00
10"	\$375.00	\$375.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00	\$450.00
12"	\$440.00	\$440.00	\$528.00	\$528.00	\$528.00	\$528.00	\$528.00	\$528.00	\$528.00
16"	\$580.00	\$580.00	\$696.00	\$696.00	\$696.00	\$696.00	\$696.00	\$696.00	\$696.00
20"	\$790.00	\$790.00	\$948.00	\$948.00	\$948.00	\$948.00	\$948.00	\$948.00	\$948.00
24"	\$1,030.00	\$1,030.00	\$1,236.00	\$1,236.00	\$1,236.00	\$1,236.00	\$1,236.00	\$1,236.00	\$1,236.00
New Contract									
Commodity Rate (per ccf)									
Off-Peak							\$0.84	\$0.94	\$1.01
Peak							\$1.27	\$1.42	\$1.53
Growth Charge							\$0.60	\$0.60	\$0.60
Demand Charge									
(\$/1000 gals of deficient storage)							\$22.00	\$22.00	\$22.00
One Time New Service Fee (\$s/mtr)									
3/4"							\$1,349	\$1,349	\$713
1"							\$2,698	\$2,698	\$1,426
1 1/2"							\$6,745	\$6,745	\$3,565
2"							\$10,792	\$10,792	\$5,704
3"							\$29,678	\$29,678	\$15,686
4"							\$41,819	\$41,819	\$22,103
6"							\$89,034	\$89,034	\$47,058
8"							\$151,088	\$151,088	\$79,856
10"							\$227,981	\$227,981	\$120,497
12"							\$321,062	\$321,062	\$169,694
16"							\$321,062	\$321,062	\$169,694
20"							\$321,062	\$321,062	\$169,694
24"							\$321,062	\$321,062	\$169,694

B. Residential Water Rate History

Effective Date:	1/1/99	12/31/99	5/16/01	7/16/01	1/1/02	7/16/02	9/16/02	1/1/04
Residential - Inside								
Commodity Rate (per ccf)								
Off-Peak	\$1.60	\$2.16	\$2.16	\$2.16	\$2.33	\$2.33	\$2.35	\$2.53
Peak 1st Block***	\$1.60	\$1.60	\$2.16	\$2.16	\$2.36	\$2.36	\$2.75	\$2.88
Peak 2nd Block***	\$2.53	\$2.53	\$2.85	\$2.85	\$3.07	\$3.07	\$3.20	\$3.35
Peak 3rd Block***	-	-	-	\$11.40	\$11.40	\$8.55	\$8.55	\$8.55
Meter Charges (See Below)								
Residential - Outside								
Commodity Rate (per ccf)								
Off-Peak	\$1.82	\$2.46	\$2.46	\$2.46	\$2.66	\$2.66	\$2.68	\$2.88
Peak 1st Block***	\$1.82	\$1.82	\$2.46	\$2.46	\$2.66	\$2.66	\$3.14	\$3.28
Peak 2nd Block***	\$2.88	\$2.88	\$3.25	\$3.25	\$3.50	\$3.50	\$3.65	\$3.82
Peak 3rd Block***	-	-	-	\$13.00	\$13.00	\$9.75	\$9.75	\$9.75
Meter Charges (See Below)								
Utility Credit - Inside								
Fixed Credit (per month)								
-	-	-	-	-	-	-	-	-
Commodity Rate (per ccf)								
Off-Peak	\$0.80	\$1.08	\$1.08	\$1.08	\$1.17	\$1.17	\$1.18	\$1.27
Peak 1st Block***	\$0.80	\$0.80	\$1.08	\$1.08	\$1.18	\$1.18	\$1.38	\$1.44
Peak 2nd Block***	\$1.27	\$1.27	\$1.43	\$1.43	\$1.54	\$1.54	\$1.60	\$1.68
Peak 3rd Block***	-	-	-	\$5.70	\$5.70	\$4.28	\$4.28	\$4.28
Meter Charges (See Below)****								
50%	50%	50%	50%	50%	50%	50%	50%	50%
Utility Credit - Outside								
Fixed Credit (per month)								
-	-	-	-	-	-	-	-	-
Commodity Rate (per ccf)								
Off-Peak	\$0.91	\$1.23	\$1.23	\$1.23	\$1.33	\$1.33	\$1.34	\$1.44
Peak 1st Block***	\$0.91	\$0.91	\$1.23	\$1.23	\$1.33	\$1.33	\$1.57	\$1.64
Peak 2nd Block***	\$1.44	\$1.44	\$1.63	\$1.63	\$1.75	\$1.75	\$1.83	\$1.91
Peak 3rd Block***	-	-	-	\$6.50	\$6.50	\$4.88	\$4.88	\$4.88
Meter Charges (See Below)****								
50%	50%	50%	50%	50%	50%	50%	50%	50%
Master Metered Residential Development - Outside								
Commodity Rate (per ccf)								
Off-Peak	\$0.91	\$1.43	\$1.58	\$1.58	\$1.64	\$1.64	\$2.15	\$2.55
Peak 1st Block***	\$1.82	\$1.82	\$2.46	\$2.46	\$2.66	\$2.66	\$3.14	\$3.28
Peak 2nd Block***	\$2.88	\$2.88	\$3.25	\$3.25	\$3.50	\$3.50	\$3.65	\$3.82
Peak 3rd Block***	-	-	-	\$13.00	\$13.00	\$9.75	\$9.75	\$9.75
Meter Charges (See Below)								
Eligible Projects - Inside								
Commodity Rate (per ccf)								
Off-Peak	-	\$2.17	\$2.31	\$2.31	\$2.36	\$2.36	\$2.81	\$3.16
Peak 1st Block***	-	\$2.52	\$3.08	\$3.08	\$3.25	\$3.25	\$3.67	\$3.80
Peak 2nd Block***	-	\$3.45	\$3.77	\$3.77	\$3.99	\$3.99	\$4.12	\$4.27
Peak 3rd Block***	-	-	-	\$11.40	\$11.40	\$8.55	\$8.55	\$8.55
Meter Charges (See Below)								
Meter Charge (\$s/mtr/mo)								
Inside								
3/4"	\$3.30	\$3.90	\$3.90	\$3.90	\$4.10	\$4.10	\$6.35	\$6.90
1"	\$5.30	\$6.30	\$6.30	\$6.30	\$6.70	\$6.70	\$8.35	\$8.75
1 1/2"	\$10.30	\$12.20	\$12.20	\$12.20	\$12.90	\$12.90	\$14.00	\$14.30
2"	\$16.30	\$19.30	\$19.30	\$19.30	\$20.50	\$20.50	\$22.00	\$22.00
3"	\$32.00	\$37.80	\$37.80	\$37.80	\$40.10	\$40.10	\$42.00	\$42.00
4"	\$50.00	\$59.10	\$59.10	\$59.10	\$62.60	\$62.60	\$65.00	\$65.00
Outside								
3/4"	\$3.80	\$4.40	\$4.40	\$4.40	\$4.70	\$4.70	\$7.20	\$7.90
1"	\$6.00	\$7.20	\$7.20	\$7.20	\$7.60	\$7.60	\$9.50	\$10.00
1 1/2"	\$11.70	\$13.90	\$13.90	\$13.90	\$14.70	\$14.70	\$16.00	\$16.30
2"	\$18.60	\$22.00	\$22.00	\$22.00	\$23.40	\$23.40	\$25.10	\$25.10
3"	\$36.00	\$43.10	\$43.10	\$43.10	\$45.70	\$45.70	\$48.00	\$48.00
4"	\$57.00	\$67.40	\$67.40	\$67.40	\$71.40	\$71.40	\$74.00	\$74.00

C. General Service Water Rate History

Effective Date:	1/1/99	12/31/99	5/16/01	7/16/01	1/1/02	7/16/02	9/16/02	1/1/04
-----------------	--------	----------	---------	---------	--------	---------	---------	--------

General Service - Inside

Commodity Rate (per ccf)

Off-Peak	\$0.71	\$1.11	\$1.24	\$1.24	\$1.29	\$1.29	\$1.69	\$2.00
Peak	\$2.01	\$2.01	\$2.25	\$2.25	\$2.34	\$2.34	\$2.75	\$3.35

General Service - Outside

Commodity Rate (per ccf)

Off-Peak	\$0.81	\$1.27	\$1.41	\$1.41	\$1.47	\$1.47	\$1.93	\$2.28
Peak	\$2.29	\$2.29	\$2.57	\$2.57	\$2.67	\$2.67	\$3.14	\$3.82

Utility Credit - Inside & Outside (Fixed Credit per month)

General Service (Multifamily)	\$3.28	\$3.37	\$3.47	\$3.47	\$3.57	\$3.57	\$4.50	\$5.30
-------------------------------	--------	--------	--------	--------	--------	--------	--------	--------

Meter Charge (\$s/mtr/mo)

Inside

3/4"	\$3.30	\$3.90	\$3.90	\$3.90	\$4.10	\$4.10	\$6.35	\$6.90
1"	\$5.30	\$6.30	\$6.30	\$6.30	\$6.70	\$6.70	\$8.35	\$8.75
1 1/2"	\$10.30	\$12.20	\$12.20	\$12.20	\$12.90	\$12.90	\$14.00	\$14.30
2"	\$16.30	\$19.30	\$19.30	\$19.30	\$20.50	\$20.50	\$22.00	\$22.00
3"	\$32.00	\$37.80	\$37.80	\$37.80	\$40.10	\$40.10	\$42.00	\$42.00
4"	\$50.00	\$59.10	\$59.10	\$59.10	\$62.60	\$62.60	\$65.00	\$65.00
6"	\$100.00	\$118.20	\$118.20	\$118.20	\$125.30	\$125.30	\$127.00	\$127.00
8"	\$160.00	\$189.10	\$189.10	\$189.10	\$200.40	\$200.40	\$202.00	\$202.00
10"	\$240.00	\$283.60	\$283.60	\$283.60	\$300.60	\$300.60	\$302.00	\$302.00
12"	\$340.00	\$401.80	\$401.80	\$401.80	\$425.90	\$425.90	\$428.00	\$428.00
16"	\$570.00	\$673.60	\$673.60	\$673.60	\$714.00	\$714.00	\$716.00	\$716.00
20"	\$830.00	\$980.90	\$980.90	\$980.90	\$1,039.80	\$1,039.80	\$1,042.00	\$1,042.00
24"	\$1,330.00	\$1,571.80	\$1,571.80	\$1,571.80	\$1,666.10	\$1,666.10	\$1,668.00	\$1,668.00

Outside

3/4"	\$3.80	\$4.40	\$4.40	\$4.40	\$4.70	\$4.70	\$7.20	\$7.90
1"	\$6.00	\$7.20	\$7.20	\$7.20	\$7.60	\$7.60	\$9.50	\$10.00
1 1/2"	\$11.70	\$13.90	\$13.90	\$13.90	\$14.70	\$14.70	\$16.00	\$16.30
2"	\$18.60	\$22.00	\$22.00	\$22.00	\$23.40	\$23.40	\$25.10	\$25.10
3"	\$36.00	\$43.10	\$43.10	\$43.10	\$45.70	\$45.70	\$48.00	\$48.00
4"	\$57.00	\$67.40	\$67.40	\$67.40	\$71.40	\$71.40	\$74.00	\$74.00
6"	\$114.00	\$134.70	\$134.70	\$134.70	\$142.80	\$142.80	\$145.00	\$145.00
8"	\$182.00	\$215.60	\$215.60	\$215.60	\$228.50	\$228.50	\$230.00	\$230.00
10"	\$274.00	\$323.30	\$323.30	\$323.30	\$342.70	\$342.70	\$344.00	\$344.00
12"	\$388.00	\$458.10	\$458.10	\$458.10	\$485.50	\$485.50	\$488.00	\$488.00
16"	\$650.00	\$797.90	\$797.90	\$797.90	\$814.00	\$814.00	\$816.00	\$816.00
24"	\$946.00	\$1,118.20	\$1,118.20	\$1,118.20	\$1,185.40	\$1,185.40	\$1,188.00	\$1,188.00
	\$1,516.00	\$1,791.90	\$1,791.90	\$1,791.90	\$1,899.40	\$1,899.40	\$1,902.00	\$1,902.00

D. Fire Service Rate History

Effective Date:	1/1/99	12/31/99	5/16/01	7/16/01	1/1/02	7/16/02	9/16/02	1/1/04
-----------------	--------	----------	---------	---------	--------	---------	---------	--------

Volume (Penalty) Rate per ccf

Inside	\$11.00	\$14.30	\$14.90	\$14.90	\$16.00	\$16.00	\$20.00	\$20.00
Outside	\$12.50	\$16.30	\$17.00	\$17.00	\$18.20	\$18.20	\$22.80	\$22.80

Meter Charge (\$s/mtr/mo)**Inside**

2"	\$7.50	\$8.90	\$9.30	\$9.30	\$10.00	\$10.00	\$13.20	\$15.40
3"	\$23.00	\$18.00	\$19.00	\$19.00	\$20.00	\$20.00	\$20.00	\$20.00
4"	\$23.00	\$27.00	\$28.00	\$28.00	\$30.00	\$30.00	\$32.00	\$37.00
6"	\$47.00	\$56.00	\$59.00	\$59.00	\$63.00	\$63.00	\$63.00	\$63.00
8"	\$75.00	\$89.00	\$93.00	\$93.00	\$100.00	\$100.00	\$100.00	\$100.00
10"	\$107.00	\$128.00	\$134.00	\$134.00	\$144.00	\$144.00	\$144.00	\$144.00
12"	\$158.00	\$188.00	\$196.00	\$196.00	\$210.00	\$210.00	\$210.00	\$210.00

Outside

2"	\$8.50	\$10.00	\$10.60	\$10.60	\$11.00	\$11.00	\$15.00	\$18.00
3"	\$27.00	\$21.00	\$22.00	\$22.00	\$23.00	\$23.00	\$23.00	\$23.00
4"	\$27.00	\$31.00	\$32.00	\$32.00	\$34.00	\$34.00	\$36.00	\$42.00
6"	\$53.00	\$64.00	\$67.00	\$67.00	\$72.00	\$72.00	\$72.00	\$72.00
8"	\$85.00	\$101.00	\$106.00	\$106.00	\$114.00	\$114.00	\$114.00	\$114.00
10"	\$122.00	\$146.00	\$153.00	\$153.00	\$164.00	\$164.00	\$164.00	\$164.00
12"	\$180.00	\$214.00	\$223.00	\$223.00	\$239.00	\$239.00	\$239.00	\$239.00

E. Average System Rate Increase History

Effective Date	Rate Increase
January 1, 1999	10.5%
December 31, 1999	19.1%
May 16, 2001	5.9%
July 16, 2001	(3 rd Tier)
January 1, 2002	5.6%
September 16, 2002	14.5%
January 1, 2004	10.6%
January 1, 2005	0.2%

F. Actual, Proposed and Projected Financial Performance

	Target	Actual 1999	Actual 2000	Actual 2001	Actual 2002	Actual 2003	Actual 2004	Actual 2005	Projected 2006	Projected 2007	Projected 2008	Projected 2009	Projected 2010	Projected 2011
Net Income (\$1,000's)	positive	(3,412)	20,728	4,884	2,570	16,853	18,908	1,706	6,122	1,389	158	38	298	1,491
Debt Service Coverage	1.7x	1.65	1.61	1.37	1.51	1.64	1.72	1.68	1.78	1.78	1.75	1.75	1.70	1.70
Cash Financing of the Capital Program	20%*	8.2%	10.8%	10.4%	11.8%	19.4%	28.4%	25.0%	20.9%	15.0%	26.1%	23.9%	23.7%	34.6%
from Contributions in Aid of Construction		6.7%	5.7%	7.0%	6.7%	5.1%	13.8%	13.2%	10.4%	9.2%	13.3%	11.8%	13.3%	17.1%
from Rate Revenues		1.5%	5.1%	3.4%	5.1%	14.4%	14.6%	8.0%	8.5%	5.5%	12.5%	11.8%	10.4%	17.5%
from Bonneville Power Administration Account							0.0%	3.8%	2.0%	0.4%	0.3%	0.3%	0.0%	0.0%
Year-End Operating Cash (\$1,000's)	varies**	3,114	8,403	1,255	3,991	5,876	4,948	8,874	5,012	5,446	5,555	5,694	5,836	5,982

* Current revenues should be used to finance no less than 15% of the CIP in any year, and not less than 20% of the CIP over the period of each rate proposal.

** The target for the year-end operating fund cash balance is one month's operating expenditures. The 2005 ending cash balance also includes excess \$3 million excess cash due to the 2005 bond refinancing.

G. Actual, Proposed and Projected Revenues

Revenue Source	"Actual" 1999	"Actual" 2000	"Actual" 2001	"Actual" 2002	"Actual" 2003	"Actual" 2004	"Actual" 2005	"Proposed" 2006	"Projected" 2007	"Projected" 2008	"Projected" 2009	"Projected" 2010	"Projected" 2011
Investment Interest	3,116,258	6,139,883	1,743,004	872,549	1,397,081	1,023,320	2,927,422	1,810,062	1,348,623	1,340,211	1,140,337	1,087,511	776,909
Other Interest	(1,167,282)	966,429	463,347	275,391	(587,664)	-	-	-	-	-	-	-	-
Sale of Property	1,850,905	928,195	1,367,443	-	5,893,200	1,374,800	-	-	-	-	-	-	-
Timber Sales	28,353	14,194	18,092	-	859,370	223,952	-	-	-	-	-	-	-
Retail Water Sales	58,167,834	71,061,331	72,894,569	80,848,137	92,231,134	101,190,120	95,381,931	98,625,834	101,169,446	106,555,935	114,538,527	116,882,469	121,560,319
Wholesale Water Sales	27,114,287	33,121,430	30,936,018	35,034,875	41,460,911	41,519,351	40,793,809	39,793,000	41,794,000	43,216,000	44,319,000	45,317,000	47,661,000
Facilities Charges	-	-	-	752,742	684,244	-	747,224	945,000	945,000	945,000	945,000	945,000	945,000
Call Center payments for City Light	-	-	-	-	1,145,879	1,060,518	911,353	1,337,048	1,370,475	1,404,737	1,439,855	1,475,851	1,512,748
Inventory Purchased by SDOT	-	-	-	555,567	322,779	267,495	344,485	314,202	322,057	330,108	338,361	346,820	355,491
Miscellaneous Water Ser. Charges	1,004,708	1,151,856	1,380,193	1,378,503	1,524,705	6,579,815	6,855,993	7,027,393	7,203,078	7,383,155	7,567,733	7,756,927	7,950,850
Wholesale Water Credits	-	-	-	-	(1,039,218)	(2,994,931)	(1,134,608)	(1,175,631)	-	-	-	-	-
Rentals--Non-City	168,726	285,508	236,213	219,708	203,879	242,121	322,285	330,342	338,601	347,066	355,742	364,636	373,752
Other Operating Revenues	489	-	-	139	-	-	-	-	-	-	-	-	-
NSF Check Charges	18,048	21,743	28,094	29,735	30,311	18,879	19,507	19,995	20,495	21,007	21,532	22,070	22,622
Contributions in Aid of Construction	7,457,305	5,210,512	5,470,681	6,167,043	4,641,211	3,398,835	4,985,983	3,581,707	3,557,217	3,430,726	3,327,741	3,363,769	3,405,816
Bond Issue Proceeds/Existing Bonds	-	-	-	-	-	83,055,000	142,020,276	-	-	-	-	-	-
Bond Issue Proceeds/Future Bonds	-	-	-	-	-	-	-	39,188,481	61,083,392	49,911,041	43,642,575	43,383,241	27,078,578
Salvage	18,813	40,467	7,913	-	-	-	-	10,000	10,000	10,000	10,000	10,000	10,000
Other Miscellaneous Revenue	195,038	729,206	265,098	167,929	130,302	119,922	26,877	26,877	26,877	26,877	26,877	26,877	26,877
Interlocal Grants	-	-	85,577	46,195	107,500	148,243	-	-	-	-	-	-	-
Rate Stabilization Account	-	-	-	-	(5,349,004)	(5,000,000)	(625,000)	600,000	650,000	1,150,000	-	-	-
BPA Fund	-	-	-	-	(6,690,100)	-	3,351,050	1,527,000	336,000	188,000	203,000	-	-
Water Service for Fire Protection	-	-	-	-	-	-	4,080,000	4,140,000	5,569,998	5,866,557	6,306,048	6,435,096	6,692,640

H. Actual, Proposed and Projected Operations Expenditures

	Actual 1999	Actual 2000	Actual 2001	Actual 2002	Actual 2003	Actual 2004	Actual 2005	Adopted 2006	Projected 2007	Projected 2008	Projected 2009	Projected 2010	Projected 2011
General Expense													
Taxes	8,867,440	10,674,858	10,956,886	11,597,613	13,637,786	15,149,730	20,389,093	20,855,003	23,731,620	24,917,574	26,677,520	27,221,142	28,263,246
Other	2,925,397	2,936,963	6,864,479	5,024,567	5,744,009	6,234,327	9,833,780	8,722,783	8,953,822	9,177,667	9,407,109	9,642,287	9,883,344
Director's Office	2,157,861	2,629,155	2,774,982	2,542,441	2,258,998	1,846,145	2,380,566	2,004,913	2,055,036	2,106,412	2,159,072	2,213,049	2,268,375
Finance and Administration	8,485,012	8,919,010	10,082,375	9,944,860	9,381,423	9,616,789	9,843,631	10,075,050	10,747,176	11,015,856	11,291,252	11,573,533	11,862,872
Customer Service	7,197,693	7,561,421	7,841,762	7,902,710	8,497,080	8,608,297	9,017,719	9,148,728	9,377,446	9,611,882	9,852,179	10,098,484	10,350,946
Engineering Services	3,687,247	2,332,256	2,431,968	2,330,972	2,418,641	2,471,669	2,955,647	2,565,977	2,630,126	2,695,880	2,763,277	2,832,358	2,903,167
Resource Management	12,751,893	16,214,491	18,584,948	7,839,018	8,448,147	7,520,277	8,249,148	7,579,460	8,504,384	8,716,994	8,934,918	9,158,291	9,387,249
Field Operations	11,857,734	11,920,582	12,388,963	23,608,899	25,159,335	25,902,350	27,128,995	28,303,232	34,370,188	35,229,442	36,110,179	37,012,933	37,938,256
G&A Credits	(5,559,238)	(6,203,080)	(7,823,473)	(6,550,815)	(8,343,766)	(8,455,016)	(9,154,130)	(8,260,200)	(8,466,705)	(8,678,373)	(8,895,332)	(9,117,715)	(9,345,658)
Debt Service													
Interest	26,181,965	29,083,397	29,227,518	31,254,261	25,377,152	33,049,778	37,112,119	40,151,110	38,212,739	40,389,283	41,891,720	42,948,960	43,917,413
Principal	9,715,000	15,180,000	17,595,000	18,360,000	25,435,000	21,600,000	22,370,000	21,880,376	20,488,038	22,652,605	24,371,046	26,222,600	28,140,944

I. Operations Budget History

		Budget 1999	Budget 2000	Budget 2001	Budget 2002	Budget 2003	Budget 2004	Budget 2005	Budget 2006
General Expense									
	Taxes	9,966,000	11,232,000	11,789,000	12,899,000	14,080,472	14,566,822	20,153,751	20,855,003
	Other	3,293,914	3,258,415	2,855,189	2,926,569	5,583,660	7,528,253	8,072,090	8,722,7836
Director's Office		1,440,132	2,301,193	2,537,274	2,512,546	2,362,350	2,219,678	1,985,304	2,004,913
Finance and Administration		7,812,199	8,159,961	8,769,313	8,994,934	9,249,009	8,687,181	9,451,619	10,075,050
Customer Service		7,090,166	7,539,792	7,216,376	7,405,129	9,166,349	8,985,727	9,088,868	9,148,728
Engineering Services		2,352,408	2,385,302	2,435,886	2,520,447	2,466,655	2,436,273	2,518,792	2,565,977
Resource Management		13,020,218	15,086,914	17,361,243	18,206,606	8,298,679	7,409,157	7,618,484	7,579,460
Field Operations		12,600,380	16,276,314	12,300,770	12,442,117	25,315,226	25,029,017	27,804,092	28,303,232
G&A Credits						(8,745,211)	(8,566,893)	(8,651,983)	(8,260,200)
Debt Service								-	
	Interest	19,867,000	24,738,000	29,927,000	32,811,000	32,486,050	36,060,645	39,380,594	40,151,110
	Principal	12,118,000	15,097,000	17,595,000	18,478,000	20,482,000	21,724,502	21,972,212	21,880,376

Appendix D: Cost Allocation Details

A. Separation of Wholesale Cost from Distribution Cost

Seattle has developed a regional supply and transmission system. Both wholesale customers (suburban municipalities and water districts) and Seattle's direct service customers share the cost of this system. Long-term contracts signed in 2001 and 2002 with several wholesale customers provide a basis for allocating costs of the regional system between wholesale customers and Seattle's direct service customers. As of 2004, over 80% of total regional consumption is recovered from customers served by these new contracts (including Seattle).

The new contracts identify the assets that make up the regional system and specify a utility basis for the amortization of the costs of the assets. Under the new contracts, these regional costs are recovered from rates and fees charged to all customers, including Seattle. In 2004, Seattle's direct service customers represented 52.6% of flows, so 52.6% of the regional system costs are allocated to direct service customers, as follows:

Regional System Costs Allocated to Direct Service Customers

Categories	O&M	Depreciation	Return on Rate Base	Total	Share for Direct Service-
Supply	20,882,564	8,839,962	20,981,487	50,704,013	26,653,074.13
Transmission	7,256,866	5,417,678	12,220,552	24,895,097	13,086,357.77
1% Conservation	1,157,065	644,198	442,879	2,244,141	1,179,655.52
Sub-regional	333,712	200,175	656,923	1,190,810	799,726.63
Total	29,630,208	15,102,013	34,301,841	79,034,062	41,718,814

B. Allocation of Operations and Maintenance Costs

O&M costs are coded into over 600 separate activities. Each of these activities must then be allocated to the individual rate classes. To accomplish this, a intermediate step is undertaken to assign each activity to a cost category (e.g. regional supply and transmission, commodity, peak period, equivalent meters, accounts, public fire protection, etc). For each cost category, an allocation procedure is developed to assign the cost category to the individual rate classes. For example, commodity costs are assigned to the residential, commercial, private fire service classes in proportion to the annual amount of water used by each class, cost categorized as “accounts” are allocated to the rate classes in proportion to the number of accounts in each class. The rate class allocators for each cost category are summarized below.

Cost Category	Method of Allocation to Rate Classes
Accounts	Number of accounts
As assets	Allocates costs in proportion to the allocation of asset costs.
Composite	A derived allocator based on the aggregate percentage allocations for all non-composite costs.
Commodity	Allocation in proportion to annual water consumption in each class
Direct Allocation	Costs unique to a customer class are assigned to that class without first being assigned to a cost category.
Mains	47.1% of cost to Public Fire Protection, the balance to each rate class based on peak period usage.
Pumps	Peak period usage
Public Fire	100% of costs to Public Fire Protection, including 47.1 % of Mains, and 1.5% of Reservoirs
Regional Supply & Transmission	47.4% to wholesale customers, the balance to each direct service rate class in proportion to annual water consumption in each class
Reservoirs	1.5% of cost to Public Fire Protection, the balance to each rate class based on peak period usage.
Sub regional costs	Allocation in proportion to annual water consumption in each class

The following table provides a high level summary of how activities in each branch are classified:

Branch	Cost Classification
General Expense	
N010 - General Expense	
N0101 - CITY CENTRAL COST	Composite
N0102 - Claims	As Assets
N0104 - Special Projects	Composite
N070 - Taxes	Direct Service Revenues
Directors Office	Composite
Finance & Administration	Composite
Customer Service	Accounts
Engineering Services	As Assets
N410 - Branch Administration	As Assets
Resource Management	
N510 - Branch Administration	Commodity
N520 - Resource Development	As Assets
N530 - Community Services	As Assets
N540 - Watershed Management	Supply/Transmission
N560 - Resource Planning	
N5601 - PROGRAM MANAGEMENT	Commodity
N5607 - DRINKING WATER SUPPLY PLANNING	Commodity
N5608 - DRINKING WTR DEMAND MGMT/REUSE	Commodity
N5609 - DRAINAGE & WASTEWATER PLANNING	Commodity
N5611 - EVAL/ANALYSIS/WP (RE)DESIGN	Commodity
N5612 - FORECASTING/LR PLANNING/MODELI	Commodity
N5613 - DATA MGMT & RPTG/RESEARCH SPT	Commodity
N5614 - GENERAL ENVIRONMENTAL	As Assets
N5615 - HCP Program Management	Commodity
N5616 - SCIENCE AND TECHNOLOGY SUPPORT	As Assets
Field Operations	
N610 - Branch Administration	As Assets
N630 - Field Support	As Assets
N650 - Water Operation	
N6501 - PROGRAM MANAGEMENT	As Assets
N6510 - MISC WATER OPERATIONS	As Assets
N6521 - WD - WATER MAIN MAINT	Mains
N6522 - WD - VALVE OPERATION MAINT	As Assets
N6523 - WD - SERVICE MAINTENANCE	Services
N6524 - WD - HYDRANT MAINTENANCE	Public Fire
N6525 - WD - DAMAGE BY OTHERS	As Assets
N6526 - WD - CASTING/METER BOX	Services
N6527 - WD - CUSTOMER SERVICES	Services
N6529 - WD - GENERAL EXPENSE	As Assets
N6530 - WM - REGULATING EQUIPMENT	As Assets
N6531 - WM - PUMPING EQUIPMENT	Pumping
N6532 - WM - TELEMETRY	As Assets
N6533 - WM - ELECTRICAL EQUIPMENT	As Assets
N6534 - WM - FLOWMETERING EQUIPMENT	As Assets
N6535 - WM - STORAGE FACILITIES	Reservoirs
N6536 - WM - GROUNDS/FACILITIES MAINT	As Assets
N6537 - WM - CARPENTER SHOP	As Assets
N6538 - WM - FABRICATION SHOP	As Assets
N6539 - WM - GENERAL EXPENSE	As Assets
N6540 - WT - HEADWORK/STORAGE	Supply/transmission
N6541 - WT - TRANSMISSION PIPELINE MAI	Supply/transmission
N6542 - WT - VALVE OP/MAINT-WATER TRAN	Supply/transmission
N6543 - WT - GROUNDS/ROADS/ROW	Supply/transmission
N6544 - WT - FACILITY MAINTENANCE	Supply/transmission
N6545 - WT - CASTINGS	Supply/transmission
N6546 - WT - CUSTOMER SERVICES	Supply/transmission
N6547 - WT - DAMAGE BY OTHERS	Supply/transmission
N6548 - WT - TRANSMISSION SHOPS	Supply/transmission
N660 - N6549 - WT - GENERAL EXPENSES	Supply/transmission
N670 - Strategic Operations	As Assets

The classification of O&M activities produces the following cost assignments:

Operations & Maintenance (O&M) Costs							
Categories	Direct Service Share	Peak Day	Peak Week	Commodity	Meter Equiv	Accounts	Public Fire
Regional Supply	53%			100%			
Regional Transmission	53%			100%			
New Supply	53%			100%			
Sub-regional	67%			100%			
Reservoirs	100%	6%	14%	78%			2%
Pumping	100%		100%				
Mains	100%			53%			47%
Public Fire	100%						100%
Commodity	100%			100%			
As Assets (gross)	100%	0.2%	2.4%	74.0%	13.7%	4.1%	5.5%
As Assets (credit from S&T)	53%	0.2%	2.4%	74.0%	13.7%	4.1%	5.5%
Composite (net)	100%	0.2%	1.9%	70.8%	9.8%	12.2%	5.2%
Meters (reading, testing, repair)	100%					100%	
Services	100%				100%		
Customer Service	100%					100%	
Accounts	100%					100%	
Residential	100%					100%	
General Service	100%					100%	
System Total							

C. Allocation of Infrastructure Costs

Asset values and annual depreciation for the various components of the system are shown below:

Asset Details					
Category	Original Cost	Accum Depr	Net Book	Annual Depr	ROR
Existing Supply	420,963,613	71,272,166	349,691,447	8,839,962	20,981,487
Existing Transmission	265,767,048	62,091,182	203,675,867	5,417,678	12,220,552
New Supply, Facilities chr	166,680,113	75,914,393	90,765,720	644,198	5,445,943
New Transmission	-	-	-	-	-
Sub-Regional	31,207,100	8,094,395	23,112,705	334,032	1,386,762
Reservoirs	22,698,945	6,664,201	16,034,744	421,469	536,041
Pumps	9,580,142	3,662,518	5,917,623	545,130	197,826
Mains	91,322,503	20,695,764	70,626,739	1,542,197	2,361,052
Public Fire	3,047,616	1,413,546	1,634,069	65,558	54,627
Other Commodity	36,428,557	4,584,179	31,844,378	643,511	1,064,558
Meters	99,888,103	27,658,069	72,230,034	2,478,549	2,414,650
Accounts	11,724,982	4,972,396	6,752,586	1,342,368	225,739
Other Misc	17,322,747	2,001,880	15,320,867	1,326,453	512,177
Total	1,176,631,468	289,024,688	887,606,780	23,601,105	47,401,414

The Supply/Transmission, reservoirs, mains, pumps and hydrants categories are self-explanatory. *Other commodity* includes the water quality lab and purification facilities. *Other Customer-related* includes meters and services and the Water Fund's share of the CCSS billing system. The *Account-related* category includes communication equipment and IT investments.

These system components must be classified into the standard cost of service groups (i.e. commodity, capacity, customer, etc.):

Allocation of Asset Costs to Cost Classifications

Asset Categories	Direct Service Share	Peak Day	Peak Week	Commodity	Meter Equiv	Accounts	Public Fire
Regional Supply	53%			100%			
Regional Transmission	53%			100%			
New Supply	53%			100%			
Sub-regional	67%			100%			
Reservoirs	100%	6%	14%	78%			2%
Pumping	100%		100%				
Mains	100%			53%			47%
Public Fire	100%						100%
Other Commodity	100%			100%			
Meters & Services	100%				100%		
Account-related	100%					100%	
Misc	100%	0.2%	2.4%	74.0%	13.7%	4.1%	5.5%
System Total							

The *Supply & Transmission* percentage follows the assignment used in the new purveyor contract. *Reservoirs* are split between commodity and peak periods with a very small portion to public fire. *Mains* are shared between peak period uses and public fire protection. The allocation of both reservoirs and mains is discussed later. *Pumps* have been assigned 100% to capacity. *Hydrants*, *Other Commodity*, and *Account-related* are self-explanatory. Alternatively some assignment to commodity could be justified but the overall results are not sensitive to either alternative. *Other Misc.* is a varied collection of assets but with a predominately 'commodity' connection to them.

D. Public Fire Service.

The costs associated with providing public fire service are for fire hydrants and for oversizing watermain and reservoirs.

Fire Hydrants - There are, in all, about 18,000 hydrants on the system with a net book value of \$ 1.9 million. Annual maintenance costs on the hydrants is about \$600,000.

Reservoirs - The storage capacity of reservoirs provide:

- several days of supply in the case of emergencies (e.g. earthquakes)
- a reserve of water for fighting fires
- a source of water for heavy demand periods (diurnal peaks and hot day peaks)

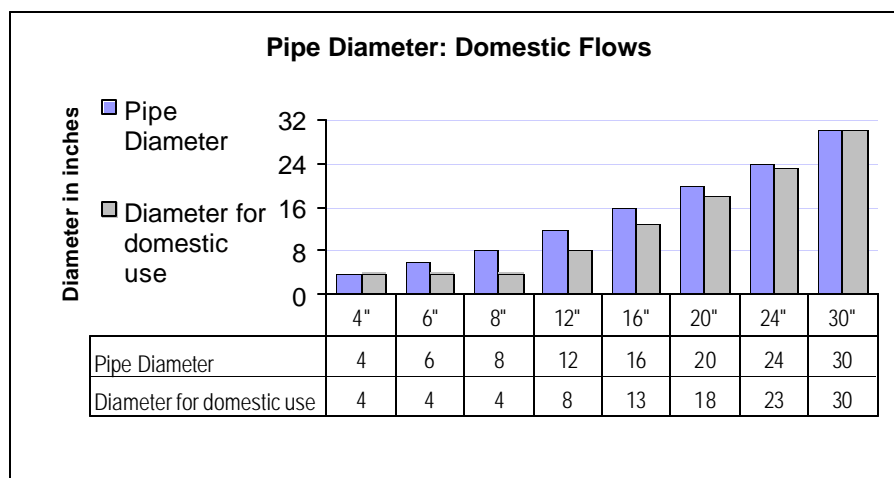
The cost of reservoirs is allocated to these uses based on the proportion of capacity devoted to each use:

Distribution Storage & Use

Use	Amount (or formula to calculate)	Million of Gallons	%
Intra-day	15% Peak day Demand	17	6%
Peak Week	3* (Peak Day-Peak Week)	40	14%
Fire capability	~ 4 MG	4	1.5%
Emergency	2 to 3 days of average demand	214	78%
Total		275	100%

Watermains - Watermains are sized to meet fire flow requirements and domestic demands for water. In sizing the watermain, the pipe must have sufficient capacity to meet two separate criteria; (i) peak hour domestic demand and (ii) peak day domestic demand + fire flow requirements. For medium and small-size pipes (8" diameter or less) the second criteria will be the binding constraint. For larger size pipe i.e., pipes that are serving very large areas or areas with very dense developments, the first criteria (peak hour demand) will be the binding constraint.

The most common size pipe in Seattle's system is, by far, an 8" diameter pipe. In areas served by 8" mains, domestic peak hour flows, i.e., the first criteria, can typically be met with a 4" mains. The oversizing from 4" to 8" is needed to meet the second criteria. Taking into account that hydraulic capacity grows exponentially with the diameter of the pipe, this means about 25% of the 8" pipe is serving domestic flows and 75% is providing fire protection. Pipes smaller than 8" were installed on the system when the fire flow requirements were lower than they are today. For this allocation exercise, the cost of 4" mains were assigned to domestic service and the cost of 6" mains were assigned to public fire protection. For pipes larger than 8", the share of capacity needed for fire flows shrinks until we reach pipes with diameters of 30" or more. The graph below shows the relationship between pipe size and fire flow requirements expressed in diameters.



The cost of watermains is split between fire protection and domestic uses based on the shares of hydraulic capacity discussed above. The first step is to compute the installed cost for all the mains in the system.

[Step 1] Installed Cost = $\sum (\$\text{Cost}/ \text{LF}_d) \times (\text{LF}_d)$ summed over all diameters.

where $\$ \text{Cost}/ \text{LF}_d$ = the installed cost per lineal feet of a pipe of diameter 'd' ,and

where LF_d = the number of lineal feet in the system of pipe of diameter 'd'.

The second step is to determine cost associated with fire protection service.

[Step 2] Fire Protection Installed Cost =

$$\sum (\text{Hydraulic Capacity for Fire}_d) \times (\text{Hydraulic Capacity of Pipe}_d) \times (\$\text{Cost}/ \text{LF}_d) \times (\text{LF}_d)$$

The final step is to determine the proportion of the installed cost devoted to fire protection.

[Step 3] Proportion of installed costs for fire protection =

$$(\text{Fire Protection Installed Cost}) / (\text{Installed Cost})$$

The percentage share determined in Step 3 is then used to assign watermain costs to fire protection. As it turns out, the cost share for fire protection for the entire system comes to 47%.